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ABSTRACT

The countries discussed in this paper are the francophone countries of West Africa and the Republic of Congo, with comparative references made to North Africa (mainly Morocco, Algeria, and Tunisia). Obstacles to the adoption of family planning in the countries of tropical Africa are a very high mortality rate among children; a socioeconomic structure that favors high fertility; very low levels of literacy; infrastructure and female participation in non-agricultural jobs; an inadequate health infrastructure; an acute lack of health personnel; and governmental opposition to the idea of population control. If family planning were introduced as an integral part of maternal and child health (MCH), it is believed that the program would have some chance of success. Potential areas of assistance by donor countries in creating a network of MCH centers are: (1) if desired by the countries, building up a "post partum" family planning program in major hospitals of major cities; (2) stimulating the development of MCH centers in both rural and urban areas; (3) offering scholarships for the training of nurse-midwives and developing local facilities for their training; and (4) offering assistance in the fields of census taking and demographic sample surveys. Ten tables present population, demographic, and mortality data. Two appendixes are reprints of two articles. An annex presents a summary of the meeting proceedings. (DB)

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FAMILY PLANNING PROGRAMMES IN AFRICA

DEVELOPMENT CENTRE
OF THE ORGANISATION
FOR ECONOMIC CO-OPERATION AND DEVELOPMENT
PARIS 1970

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FAMILY PLANNING PROGRAMMES IN AFRICA

A Paper presented by Dr. Pierre Pradervand
at an Expert Group Meeting held
at the Development Centre
Paris 6th-8th April 1970

DEVELOPMENT CENTRE
OF THE ORGANISATION
FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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PREFACE

In 1970 the Population Programme at the OECD Development Centre decided to examine in greater detail the regional aspects of population problems. The following paper by Dr. Pierre Pradervand was one of the principal background documents prepared for the first of these meetings, on "Family Planning in Africa: Programmes and Constraints", held in April 1970 in Paris. To ensure the widest circulation of this paper it was decided to publish it separately in the Centre's two working languages, French and English (1).

The Population Programme
The Development Centre,
94, rue Chardon Lagache
Paris, 16.

A brief summary of the proceedings of the meeting will be found as an appendix to this booklet.

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(1) A full report giving the discussions and papers presented to the meeting is available in mimeograph form (only in English form for the present).

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OBSTACLES TO AND POSSIBILITIES OF FAMILY PLANNING IN FRANCOPHONE COUNTRIES OF WEST AFRICA AND THE REPUBLIC OF CONGO

by

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SUMMARY

This paper refers mainly to francophone countries of tropical Africa. Most of these countries have the highest birth rates in the world, which are the result of very high mortality and a socioeconomic structure favoring high fertility. Mortality is still so high in most areas that women are obliged to have as many children as they can bear if they want to be sure that at least a few will survive to adulthood. It is thus very difficult to conceive of introducing family planning on a large scale with such high death rates, and the reduction of mortality thus seems a condition of the introduction of contraception. Other obstacles to the adoption of family planning are very low levels of literacy, infrastructure and female participation in non-agricultural jobs, an inadequate (and occasionally almost non-existent) health infrastructure, and an acute lack of health personnel.

Apart from these already serious obstacles of a socioeconomic and cultural nature, one must add considerable governmental opposition to the idea of population control, (as distinct from family planning conceived simply as a part of maternal and child health services and as a means of reducing infant mortality).

Nevertheless, despite these limitations, there exist very real possibilities of assistance, if investment in material and child health programmes are seen as a preparation for family planning -- which they are.

INTRODUCTION

The countries studied in this paper are the francophone countries of W. Africa and the Republic of Congo, although comparative references will be made to North Africa, (mainly Morocco, Algeria and Tunisia). Most of our observations are first hand, gathered both from field work and extensive interviews with top level civil-servants, demographers, planners, health personnel at all levels, staff of family planning organisations and clinics, etc... of a dozen African countries.

We will make a clear distinction between family planning and population control: by family planning, we understand in this paper the provision of family planning services, mainly but by no means exclusively through the channel of maternal and child health care (MCH) and/or family planning (FP) clinics; it is our opinion that family planning alone will never constitute an adequate population policy, and that it can only be one of the elements of such a policy. By population control, we are thinking of all the methods that go "beyond family planning" -- to quote a now classical study in this field -- in view of controlling the rate of population growth. If this control is desirable in Africa or not is an issue only Africans can decide, and on which we have heard diametrically opposed opinions from the ministerial level downwards. Nearly all the people we have talked with strongly favour family planning as an integral part of maternal and child health, but many -- including two presidential advisers -- strongly oppose population control. This has to be taken into account in any assessment of foreign assistance in this field.

Finally, we would like to recall the often stated fact that the development process is as a whole. Enthusiastic lip-service is given to this idea in development literature, but the consequences of this fact are frequently ignored. In no field is this more evident than in the field of family planning. Yet, the

acknowledged failure of the "isolated" approach in past years in parts of Asia should caution one against repeating the same mistakes in Africa. People do not live their lives in the isolated cubicles in which scientists divide them -- economic sphere, family life, education of children, health and sickness, etc... In the same way, an individual in a developing country will hardly be able to "plan" his family when the rest of his life is unplanned, chaotic, when one day he is employed, the other not. A mother cannot plan to have just three children if mortality is so high that it forces her to have as many children as she can with the hope that one single male might survive to adulthood.

The author of this paper, after years of research in Africa, is convinced that only such an integrated approach to family planning offers reasonable chances of success, and hopes the following pages will be considered to offer some arguments substantiating this thesis.

I. TROPICAL AFRICA: AN AREA OF HIGH FERTILITY AND PRONATALIST ATTITUDES

Strangely enough, for many years -- no doubt due to our very insufficient and spotty knowledge of real trends -- tropical African fertility was frequently characterized as moderate, or at least not extreme. Two recent and excellent studies, summarizing a great deal of recent research, have forced us to change our views on the subject (1). Demographers have now arrived at reliable estimates enabling them to conclude that the birth rate for all of the populations of tropical Africa combined is 49 per 1000. This is far higher than any other area of the world. In Central America, it is approximately 39 per 1000, in Asia, 38, in N. America and Europe 18 per thousand.

There are of course regions of low and even very low fertility in Africa, but it does seem that these are not so much the fruit of low fertility ambitions as of social disorganisation and the consequent high prevalence of venereal diseases. Nevertheless, such areas of low fertility have a small impact on the normative fertility of tropical Africa as a whole, being confined as they are to numerically unimportant subgroups.

Thus, if one glances at the World Population Data Sheet, (see Table I) one notices immediately that the highest birth rates -- 50 per 1000 or above -- are mostly concentrated in Africa. Of 38 countries listed in Africa, 16 have birth rates of 50 and over; in Asia, only 5 out of 27 countries listed share this dangerous privilege, compared to none in Central America. (See Tables II to V.)

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(1) W. BRASS, A.J. COALE et al., The Demography of Tropical Africa, Princeton, 1968.
J.C. CALDWELL and C. OKONJO, eds., The Population of Tropical Africa, New York, 1968.

The average total fertility -- i.e. the average number of live births per woman -- is around 6.5 per woman in tropical Africa, considerably in excess to any other region of the world (see Table VI). In Algeria, a woman married from 15-45 without interruption of her fecund life will bear an average of 10 living children -- and this excludes abortions, stillbirths, etc...(1) (see Table VII).

This high fertility seems to have its roots mainly in the socio-economic organisation and a still prevailing high mortality rate. Caldwell rightly notes that "The large family system, and hence high fertility, is buttressed by three main causes: children are either economically valuable or at least share the work burden (2); they provide assistance much needed in societies without governmental social services during old age, and to a lesser extent, during sickness; and they add by their numbers to parental prestige" (3).

This high fertility expresses itself by strongly pronatalist attitudes in the African population in general. True, there are a few small pockets of change in some minor subgroups south of the Sahara, but these cannot be said to be as yet indicative of any major reversal in African fertility trends of tropical Africa. On the contrary, it is not impossible that birth rates in some urban areas may even be increasing slightly.

These pronatalist attitudes come out quite clearly in the above-mentioned comparative study of the African attitude surveys recently made by Caldwell. Questions on ideal family size give extremely high figures, going up to 7.5

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(1) République Algérienne Démocratique et Populaire, Sous-Direction des Statistiques, Service Etat Civil, Etat Civil: Naissances 1966 et 1965, ed. provisoire, Août 1968, p. 17.

(2) In Dahomey, through which we passed recently, we were told by Peace Corps volunteers working in the Moslem and traditional Northern area that in some villages parents had been opposed to the creation of schools because they would have taken the children out of the fields -- a behavior we have not heard of in any other region of the world.

(3) P.C. CALDWELL, "The Control of Family Size in Africa" Demography 5 (1) 1968, p. 600.

in rural Ghana, as compared to 3.5-5.0 in most other developing countries(1). Even in urban Kenya, the figure is 6.2 among males. The ideal family size is thus usually comparable to or higher than the actual family size, which is generally a little over 6.0. In other words, people express the desire to have more children than they really have. Caldwell gives a table listing the proportion of people wanting 4, 5 or more children; the figures are quite staggering. Of 15 surveys listed, the lowest percentage of women wanting 5 or more children is 89, and in 8 cases it is between 98 and 100. In the most "malthusian" group, 56% want 5 or more children. The percentage wanting no more children nowhere attains 1/3 of the women interviewed, whereas in other developing areas it is currently over 1/2 and occasionally represents 4/5 of the women concerned. In North Africa, surveys have shown that attitudes are more similar to results found in other developing countries. It may thus be useful to compare briefly the islamic and sub-Saharan cultures, in view of understanding the difference in attitudes toward contraception on both sides of the Sahara.

Moslem culture has been described as conducive to the highest fertility rates in the world (2). Having done a fair amount of research on this topic in North Africa, we are not sure that this can be unequivocably affirmed and we personally believe that a certain unique mixture of conditions present only in tropical Africa have as yet posed a still more decided and formidable barrier to the diffusion of contraception than Islam. Let us take a few examples:

a) In Islamic countries (as well as in most rural areas of traditional countries) there is a strong, marked preference for male progeny. This means that as soon as a woman has had her quota of males, she

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(1) Respondants are usually asked how many children they consider ideal for someone living in their condition, or for an average woman, etc... The figures for countries of tropical Africa are way above the figures for all other regions of the regions of the world, (cf: W. P. Mauldin, "Fertility Studies - Knowledge, Attitude, Practise" Studies in Family Planning, 7, June 1965).

(2) D. KIRK, "Factors Affecting Moslem Natality", in B. BERELSON et al:, Family Planning and Population Programs, Chicago, 1967, p. 501-579.

will tend to stop conceiving as opposed to a woman who has no marked preference. However, it seems that in many, if not in most African tribes, girls are as welcome as men (1).

b) Islamic cultures have a quasi abhorrence for illegitimate children. The illegitimate child has no legal standing in Islam. In numerous African groups on the other hand, the very notion of an "illegitimate" child is ambiguous, and the fruit of such an "illegitimate" union will be joyfully adopted by the father of the girl (2).

c) Infanticide for economic reasons is quasi inexistent in tropical Africa, which does not seem to be the case in Moslem countries (3).

d) Sterility is already a tragedy for a Moslem woman; in certain African tribes, it makes the woman a quasi outcast (4).

e) The traditional African woman is seen first as a potential mother, before being considered an object of sexual attraction. This does not go to say physical beauty is unimportant, but it seems to come after the capacity to reproduce. Among the Ewande and other tribes, women do all they can to make their breasts hang down (this supposedly enables the milk to flow better and is called "casser la boule") going as far as to beat their breasts with a stick. In Islam, such a behavior would be unheard of and the abundance of erotic poetry in Moslem Arab culture for instance underlines the sexual aspect of woman's nature rather than the purely reproductive aspect. As a matter of

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(1) N. W. WILLIAMSON, Son preference around the world, (Unpublished paper, Library, Harvard Center for Population Studies, Harvard University, Boston, Mass.) which is a good summary of the topic.

(2) As among the Ewonde of the Yaounde region in Cameroon.

(3) According to the Algerian Ministery of Health, there were close to 1000 recorded infanticides in 1968 of which a considerable number are estimated to have been economically motivated. One can of course debate the significance of this factor, but their very existence shows that Islam was not a sufficiently strong barrier to prevent such events.

(4) Among at least one Upper Voltan tribe, a sterile woman, at her death, is buried unceremoniously in a special graveyard surrounded with thorns, after her thighs have been pierced. (Information communicated by Madame Izard of the Centre Voltaique de la Recherche Scientifique, Ouagadougau).

fact, the preservation of beauty was one of the first reasons advanced to justify contraception in Islamic culture (1).

f) Contraception for "malthusian" reasons is legalized in Islam (2) whereas it does not seem that this was ever a culturally approved behavior in any known African tribe.

g) Islam has always strongly insisted on premarital chastity among women, whereas in many tropical African groups there is great permissiveness toward pre-marital sex. As a matter of fact, during our trips many doctors expressed great concern over this, as a growing number of illegal abortions were occurring among high school girls.

But these attitudes have deep roots in the social structure and high mortality, as already mentioned. It would be a waste of efforts to try and change attitudes without trying to change first the social conditions which produced these attitudes, as the failure of mass communication campaigns in the field of family planning in other countries has proved. The rather ludicrous idea -- expressed by some experts in the field of mass communications -- that one can "sell" family planning with good publicity techniques, (just as one sells a deodorant) is totally alien to social reality and to the Africans themselves (3).

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(1) Cf. AKHTER HAMEED KHAN, Islamic Opinions on Contraception, Dacca, 1963.

(2) KHAN, Ibid.

(3) This idea was recently expressed by a communications expert to a group of thirty Africans from francophone Africa attending a course on family planning in developing countries. The expert -- who had worked on the Indian family planning program -- used exactly these terms. The unanimous reaction of the African group was one of deep indignation that one should try and "manipulate" people in this manner and almost anger that one should present such crude, simplistic methods to them.

II. HIGH MORTALITY AS THE MAIN OBSTACLE TO FAMILY PLANNING

The main reason that any attempt to make populations who are not ready for it adopt family planning is doomed to fail is the unique context of high infant mortality patterns in tropical Africa. In many rural areas, a newborn child still only has slightly more than one chance out of two of attaining the age of five. For many regions, data are lacking, but the following figures from a recent study of African demography give an idea of the still very high levels of infant mortality.

Infant deaths per thousand live births, selected countries of tropical Africa.

Dahomey	1961	0, 221
Guinea	1954-55	0, 246
Ivory C. 1st. agric. sector	1957-58	0, 195
Mali, Mopti	1956-58	0, 344

Infant deaths per thousand live births, selected countries of tropical Africa.

Niger	1960	0, 211
Senegal Sen. Valley	1957	0, 223
Upper Volta Mossi	1960-61	0, 270 0, 296
Central Afr. Republic	1940-50	0, 212
Congo K.	1955-57	0, 163
Cameroon	1960	0, 232

Source : A. J. Coale, Estimates of fertility and mortality in tropical Africa in Caldwell & Okonjo, eds., The Population of Tropical Africa, p. 182-183.

We will not examine here the reasons of this exceptionally high mortality -- but high mortality is certainly the main reason behind the exceptionally high fertility orientation of African culture.

> "The greatest influence in creating pro-high-fertility cultures and religions of tropical Africa has undoubtedly been high mortality levels, especially among infants and small children. These cultures were formed and entrenched at a time when possibly no more than half of all children survived to 5 years of age, no more than four-tenths of females reached reproductive age, and little more than a quarter survived to the end of the reproductive period" (1).

Despite the much heralded progresses of public health in many parts of this vast continent, mortality in Africa stays high (2) and Etienne van de Walle, one of the most knowledgeable demographers in this field, has aptly summed up the situation:

> "Our general impression of the course or mortality during the 1960's is one of impressive advances in certain countries, compensated by relapse into higher or even catastrophic mortality in other areas, and resulting finally in only slow general progress.
>
> Mortality in tropical Africa remains higher than in any other big world region, and the high morbidity contributes to the poor economic performance. The fight against the great endemic diseases has been waged for a long time, but nowhere decisively won, even in small geographically isolated Zanzibar where a vigorous malaria eradication campaign is only partly successful" (3).

With such high levels of mortality, might it not be inconsiderate to offer family planning services? The question is not entirely rhetorical. Caldwell himself has stated that "mortality levels are still so high in tropical Africa that persons considering providing family planning have to give serious thought to the possibility that they are imperilling the chance of the small

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(1) J. C. CALDWELL, "Some factors affecting fertility in Ghana", Population Council, no date (mimeo) p. 5.

(2) On the World Population Data Sheet for 1969 of the Population Reference Bureau, only two countries outside Africa, (Nepal and Burma) are mentioned as having death rates above 20 per thousand. If one adds a few places for which one has no data but where one can assume mortality levels are still pretty high, (Bhutan, Yemen, etc), this gives a maximum of half a dozen outside Africa with mortality rates above 20 per thousand. In Africa, of the 39 countries listed, (including Mauritius, which is neither ethnically nor culturally basically African), 30 countries have death rates of over 20 per thousand. (See Table I).

(3) E. VAN DE WALLE, "The population of tropical Africa in the 1980's", Adlai Stevenson Institute of International Affairs, University of Chicago, Symposium: Africa in the 1980's April 14-18, 1969, University of Chicago.

family surviving at all" (1). Recent studies done by demographers have shown fairly conclusively that under conditions of high mortality, there are not very good chances of a couple being sure that they will have at least one surviving son when they attain old age, (and, in traditional agricultural societies, a son is the equivalent to social security or an old age pension in industrial countries) (2). In India, to be certain of the survival of one single son when the father attains 65, a couple would need to have five children at least (3). In many parts of West Africa, the corresponding figure is more than seven. One is never going to convince women to adopt contraception on a large scale as long as mortality levels are so high. The rare countries where family planning programmes seem to have a slight effect on fertility all have among the lowest death rates in the world. There is no example of a successful large-scale family planning programme in any country with death rates above 12 per thousand. In the majority of countries of W. Africa, death rates are well over 200% higher, sometimes almost 300% than this figure. It should thus not surprise the reader that we conclude that high mortality is undoubtedly the single most important obstacle to the adoption of contraception on a large scale in Africa today.

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(1) J. C. CALDWELL, "Population growth in tropical Africa" (mimeo), no date, p. 4.

(2) Cf. D. HEER, "Economic Development and Fertility" Demography 3 (2) 1966, p. 423-444; D. Heer and D. O. Smith, "Mortality level, desired family size and population increase" Demography 5 (1) and population increase - further variations on a basic model" Demography, 6 (2), 1969, p. 141-149.

(3) In the well-known U. N. Mysore study, women 45-54 had an average of 5.5 live births; they expressed the desire to have 3.5-4 children (average) and they had an average of 3.8 children still alive. These women were having the right number of children in relation to their social conditions and the prevailing mortality levels.

III. STRUCTURAL OBSTACLES TO THE ADOPTION OF FAMILY PLANNING

In a paper studying the necessary conditions of a decline in fertility, R. Freedman -- maybe the most knowledgeable demographer in the field of fertility alive today -- outlined six factors which he considered as crucial: birth rates could only start declining he declared, where:

a) Significant social development has already occured

b) Mortality has been relatively low for some time

c) There is evidence that many people, wanting moderate-size families, are beginning to try to limit family size

d) Where there are large-scale effective organised efforts to disseminate family planning ideas and information.

e) Where there are effective social networks transcending local communities through which family planning ideas and services and other modernizing influences can be disseminated

f) Where such new contraceptives as the IUD or pills are effectively available (1).

Not a single one of these conditions is present in the francophone countries of W. Africa, (although they are starting to appear in North Africa). As will become evident from a perusal of Table X, there is a clear correlation between certain basic socio-economic indicators and the adoption of

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(1) R. FREEDMAN, "The transition low high to low fertility: challenge to demographers", Population Index, 31 (4) Oct. 1965, p. 417-35 (Underscoring ours)

contraception: the regions with relatively good family planning programmes, (Taiwan, S. Korea, Singapore, Malaysia, Hong Kong) are considerably more developed (and especially on crucial indicators such as literacy or urbanisation) than the second group (India, Pakistan, Algeria, Morocco, Tunisia; Turkey being somewhat between the two groups), where family planning programmes are still very shaky -- despite a lot of publicity to the contrary. But this second group is still way ahead of the third group composed of countries from tropical Africa, with very low levels of literacy, (frequently below 20 or even 10 per cent), little urbanization (often 90% or more of the population living in rural areas) practically no means of communication, persistant endemic and epidemic diseases, a totally inadequate health infrastructure. Upper Volta is a good illustration of these difficulties: two fifths of the country does not have a single doctor; the few doctors that are in the country are either grouped in the towns, or occupied half time on administrative jobs, (e.g. material organization of health campaigns like vaccination against smallpox); one midwife has to "cover" 164,000 people - an evidently impossible task. In other words, the majority of the inhabitants of the country, apart from an occasional vaccination, do not know what modern health care is; half their children die by the age of five; they live on a subsistance level diet, their children seriously menaced or weakened by kwashiorkor during the first years of their lives, with one of the very lowest per capita incomes in the world; the government is in a precarious situation financially, and 90% of the investment budget is contributed by foreign aid, which means that no long term planning is possible. In such a situation, family planning would not only be an impossible project, (women are still very "high fertility oriented", and abortion seems as yet almost non-existant even in the capital), it would be a bad and unwise allocation of meagre resources. In a country still riddled by measles, trepanomiosis, onchocerosis, kwashiokor, tuberculosis, (small pox has almost been eradicatedà, malaria... to mention but the main killers, the main economic investment and the best long-term investment in family planning, (which will probably be introduced someday in Upper Volta, when the country has attained an adequate level of development) is the fight against disease and undernourishment, (both go together). Thus it is only seemingly paradoxical to say that to control population growth, one has to first of all enable women of traditional cultures to have the many children they need to realize they have too many ! David Heer states this apparent paradox in similar terms in one of his studies:

> "Common sense has assumed that the cause of the current population explosion has been the reduction of deaths in the developing countries. This argument has merit. Nevertheless, the paradoxical inference of the present study is that progress in curbing the population explosion may be brought about through a further reduction in mortality. Obviously, therefore, the possible influence of mortality upon fertility merits more attention than it has received by scholars to date" (1).

In most areas of tropical West Africa, the main preoccupation of woman is with subfecundity, not contraception, (although there may well be a sizeable fraction of women who might be interested in spacing their births). The possible "clientele" for family planning clinics separated from the context of maternal and child health is still probably very small, restricted no doubt to a minority of the upper class urban elite and to the classical grand multipara one finds in all countries.

Policy choices in the field of population control in tropical Africa are thus extremely limited, if they even exist, as E. van de Walle has clearly pointed out:

> "It follows that African nations <u>have no real policy choice</u> at least in the short run, on the subject of population growth. They have to work toward improving health and those socio-economic conditions that are related to health and expectation of life, (within the constraints of their budget: they have, of course, little business with expensive surgery and elaborate equipment). They have to accept population growth as an inevitable consequence of progress. The important proviso is that they must be committed to a balancing effort toward reducing fertility as soon as possible" (2).

These somewhat chastizing conclusions are acknowledged by a growing number of specialists who have some knowledge of African conditions. One has to admit that a unique set of cultural, demographic and socio-economic conditions forces one to put aside any preconceived notions as to how family planning will "happen" in Africa and that what works fairly well in Taiwan,

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(1) D. HEER, "Births necessary to assure desired survivorship of sons under differing mortality conditions" Meeting of the Population Association of America 1966, (mimeo).

(2) E. v. de WALLE, op. cit. p. 21 (underscoring ours).

not very well in India and poorly in Morocco will not necessarily work at all in Dahomey or the Congo, (although it might - we just don't know yet).

These conclusions are not necessarily valid for the Maghreb where two countries (Morocco and Tunisia) have official family planning programmes. A higher level of development and lower mortality, have at least initiated widespread changes in the attitudes of couples toward contraception, which should make national family planning programmes based on maternal and child health centres a worthwhile investment in economic, medical and human terms.

IV. GOVERNMENT ATTITUDES TOWARD FAMILY PLANNING AND POPULATION CONTROL

Before examining what could nevertheless be done in the field of family planning in tropical Africa -- because if we think population control to be presently a rather hopeless objective, we consider that family planning has limited but very real possibilities, let us examine briefly governmental attitudes in this field.

It is important to make a distinction between the French-speaking and English-speaking countries in this respect, at least south of the Sahara, (although not exclusively). A few English speaking countries in this area have fairly widespread family planning activities, and two (Ghana, Kenya) have official antinatalist policies (1) and a family planning programme. In these countries there is considerable receptivity to the malthusian orientation of many Western, (or, on occasion, Eastern) (2) councillors and missions. This is certainly not the case in French-speaking countries, (although Senegal might alter its position in this respect in the coming year). Two

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(1) For Ghana, the antinatalist policy is stated in an official document of the precedent regime. At Christmas the new government had not yet taken a stand on this policy ("Population Planning for National Progress and Prosperity", Accra, March 1969)

(2) Cf. L. L. SADOWSKI, who suggests a maxium growth rate of the population of 1 per cent: Population Growth and the Strategy of Economic Development, Inaugural Lecture, University Ghana, Legon, Jan. 22, 1969, p. 17.

presidential advisers we discussed this with in francophone countries expressed the opinion that their country needed a larger population, or might do so soon, despite high rates of population growth. The idea that Africa, or at least large parts of it, is underpopulated is still widely prevalent in official circles. In countries like the Republic of Congo, (1% of the agricultural surface is under cultivation, huge deposits of various metals insure a steady source of foreign exchange, and the country has one of the world's largest hydroelectric potentials, as yet almost untapped) or like the Ivory Coast, (one of the fastest economic growth rates of Africa, and needing immigrant labour from neighboring countries), not to mention Gabon, (highest per capita income of French-speaking countries of tropical Africa, and probably underpopulated, however ambiguous the word, due to the lowest population growth rate of all the developing world, 0.9 per cent), in these countries, one can easily understand that politicians and economists think in these terms. What is more, many members of the elite in these countries are openly suspicious (and not entirely without reason) of the sudden Western eagerness to help them "control" their populations when there is often so little enthusiasm to help on other, much more urgent projects, or when deteriorating terms of trade often make it impossible to balance the budgets. This suspicion often has roots in great clumsiness of certain representatives of governmental and private representatives of Western organisations active in this field (1).

This desire to do without population control came out clearly in a declaration by president Boumedienne who said:

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(1) As a result of the lack of tact of certain doctors in Gabon, the government passed a new, anticontraceptive law which:
   a) Prohibits the importation of contraceptives
   b) Institutes severe fines and prison penalties for people contravening the law
   c) Institutes special inspectors whose responsibility it is to enforce this law.

   Although we are not aware that this was the result of foreign activity, it points to what could happen as the result of excessive pressures from outside. We know personally of a recent case when a President turned down the idea of starting a family planning clinic in the capital of his country because he was afraid he would then be "pushed" into population control.

"Our aim, in a relatively near future, will be, in the coming twenty years, to assure that the masses of our people -- which will attain the figure of about twenty five million in 20 years -- will enjoy one of the higher levels of living of the modern peoples of the world of to-morrow.

I take this occasion to say -- concerning what is called the "galoping population increase" -- that we are not in favor of false solutions such as birth control. We consider that this is simply a way of suppressing difficulties instead of searching for positive solutions. On the contrary, we are in favour of positive and efficient solutions such as the creation of jobs for adults, of schools for children and of better social amenities for all" (1).

An Algerian document on Family Planning explained the rationale behind this position, stating that:

"There is no "demographic" solution to problems that are first of all economic: the solution to the problem of underdevelopment is first and foremost an economic solution: the problem of unemployment is solved first of all by creating jobs, not by preventing potential workless people from being born; the problem of illiteracy will be solved first of all by building schools and by a radical reform of an educational system inherited from the colonial occupation rather than in preventing children from being born; the problem of health infrastructure and personnel will find its resolution first of all in a more balanced expenditure of health funds and in the creation of 2-3 medical technicians in lieu of one doctor, rather than in a malthusian policy which is a way of escaping radical structural reforms...

There is no rapid solution to the problem of underdevelopment: whatever measures are taken, there can be no solution before at least one generation. The introduction of a population policy - be it in the form of family planning or otherwise - will not enable us to evade this issue...

Birth control cannot be a way of evading structural reforms: This is by far the most important issue. For today, in many parts of the third world, we see nations turning anxiously toward Family Planning without having introduced the more radical reforms without which they will stay permanently in a state of underdevelopment.

India is a typical case: this country, which suffers permanently from undernourishment, has not yet managed to bring about the agrarian reform which would enable it to attack the root of the problem, for the reason that its parliament is dominated by wealthy landowners who evidently prefer upholding Family Planning (2).

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(1) El Moudjahid, Algiers, June 20, 1969, at the opening of the Annaba Steel Works in E. Algeria. President Boumedienne is not opposed to family planning per se, as is attested by the fact that 3 E. P. clinics are currently operating in Algeria, but the aim is to keep it on the level of maternal and child health.

(2) République Algérienne Démocratique et Populaire, Ministère d'Etat chargé des Finances et du Plan, Direction Générale du Plan et des Etudes Economiques, Commission Nationale pour l'Elaboration d'une Politique de la Natalité, Rapport de la Commission, Introduction, Alger, Janv. 1969.

Even though the last paragraph represents a somewhat simplified view of the Asian dilemma, such opinions, we think, will become more and more current in coming years if rather radical revisions of Western policy in the field of population control abroad do not intervene rapidly.

Nevertheless, as mentioned earlier, these strong reactions toward foreign aid refer only to population control, to the idea that these countries have to limit their population. When one speaks of family planning as an aspect of maternal and child health people are much more receptive, and even in countries like Mali, with very low population densities, (3 per square kilometer) the interest is genuine and sometimes enthusiastic -- one of the reasons being that the spacing of births could no doubt be an important element in the fight against the very high infant mortality rates still prevalent in that region.

V. CAN SOMETHING BE DONE NOW IN THE FIELD OF FAMILY PLANNING ?

Despite widespread opposition to the idea of birth control, there seems to be in most areas of African great interest among numerous women for the spacing of births. In the traditional, rural, pre-independence society, there existed a natural spacing of births, due partly to the polygamous structure of traditional African society and partly to various customs like the separation of spouses after childbirth (1). Under the impact of modernization, polygamy is on the decrease, (in towns like Kinshasa it has practically disappeared) and traditional customs are shattered, and the unanimous impression of numerous doctors we have interviewed is that this "natural"

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(1) P. PRADERVAND, "Some relations of parity, spacing and family size on maternal and child health, with special reference to tropical Africa" Center for Population Planning, University of Michigan, Dec. 1969, p. 39-59, (available on demand from the author). This paper studies in considerable detail the relationship of family planning to maternal and child health.

spacing is breaking down and birth intervals decreasing, thus increasing the tempo of childbirth (1).

Many Western observers tend to believe that the concept of "spacing" births is a "modern" concept understood only by "Westernized" women; yet studies undertaken in Algeria prove conclusively how erroneous such a position is, (2) and discussions with individuals working in rural areas of Togo have confirmed to us that such an interest in spacing exists also among rural women of tropical Africa. Furthermore, in large towns, there is among at least a minority of women a growing interest not only for the spacing of births, but possibly also for the limitation, as evidenced not only by attitude surveys, (3) but also by a growing number of induced abortions in most towns of some importance.

It thus seems that family planning introduced as an integral part of maternal and child health would have some chances of success if introduced cautiously and little by little. As a matter of fact, we think it necessary to state very clearly that we consider this the only approach to family planning on a relatively large scale in this area (4) and certainly so in the French-speaking countries, although some countries like Chad, the Central African Republic, Upper Volta might not even be ready for this. The necessity of such an approach was recently recognized by a Population Council Mission to Dahomey, which stated:

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(1) Some evidence of this can be found in D. I. Pool, "The rural-urban fertility differential in Ghana". Paper presented to the Conference of the International Union for the Scientific Study of Population, Sept. 3-11, 1969, London.

(2) La régulation des naissances en Algérie - opinions et attitudes des couples algériens, A A R D E S, Algiers, Summer 1968.

(3) Cf. D. I. POOL, "Social change and interest in family planning in Ghana - an exploratory analysis" (in press - to be published early 1970 in Canadian Jnal. Afric. Stud.) and J. C. CALDWELL, "The Control..." op. cit.

(4) This does not exclude that one of two F. P. Clinics devoted only to contraception could function in large towns, and it might even be necessary to use this approach in countries where the government itself does not want to be the first to start a clinic but prefers to let a private F. P. association attempt the initial trial. But this formula could not be generalized on a large scale.

> "The Mission feels strongly that more effort and finance must be concentrated on Maternal and Child Health Work. However, it also feels the need in countries with such high birth rates as Dahomey to couple this with the provision of Family Planning Facilities in areas where mortality rates have been substantially reduced" (1).

The need for the integration of family planning with maternal and child health becomes evident when one studies the close relationship of weaning patterns, birth spacing and undernourishment: high infant mortality in tropical Africa is in great part due to bad feeding habits by uneducated mothers, and the simple spacing of births would no doubt be profitable to the mother but would have little effect on the way she feeds her child, (this is explained in some detail in Appendix I).

Such an integration of Family Planning with maternal and child health is not only feasible but certainly by far the most natural way of introducing the idea of birth planning to illiterate populations. Also, the concept of maternal and child health care and its necessity is well accepted in all these countries, which would be only too pleased to open up as many MCH centres as administratively and financially feasible (2). One may add also that it is the approach favoured by the World Health Organisation, an organisation not without some experience in the field of tropical medicine (3).

H. C. Taylor and B. Berelson have developed the idea of a combined maternity care - family planning programme, (25 a) for an extract of their study). We think it quite feasible to conceive of a combined maternity care - maternal and child health - family planning programme, and the costs

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(1) J. C. CALDWELL, E. van de WALLE and G. POVEY, Preliminary report to the Government of Dahomey on the population problems of Dahomey, Population Council, Summer 1969, p. 3 (underscoring ours).

(2) That such investments have in the long run an economic value is becoming more and more evident to a growing number of economists, but this is not the place to make this point.

(3) See A. Kessler, M. D., Chief, Human Reproduction Unit, W. H. O., "Maternal Health and Infant Mortality" Paper presented to the Santiago Conference of the International Planned Parenthood Organisation, (mimeo), 1967.

would hardly be higher than those of the programme suggested by Taylor and Berelson. The figures given by these authors are amazingly low even if one takes into account only hard economic facts, for a country with the population of Mali or the Ivory Coast, the authors estimate construction costs at about $ 5 million, and operation costs at $ 2 million per year. On the demographic level, it is probably impossible to estimate if this would initially lead to a greater number of children reaching adolescence or not -- this would no doubt depend on the non-contraceptive aspects of the programme -- but in the long run it would almost certainly lead to some decline of the birth rate.

VI. STRATEGY OF AID FOR FRANCOPHONE COUNTRIES IN AFRICA

There are numerous possibilities of assistance in the field of family planning in French-speaking countries of tropical Africa today, if donor countries are ready to see that the creation of a solid network of MCH centers must be the backbone of any future family planning programme. "Crash" programmes attempting to insert a maximum number of I U D's (1) or distribute the maximum number of pills can only end in massive failures -- as has been the dire experience of both the Tunisian and Egyptian programme. (In Tunisia lorryloads of women were brought to mobile clinics where I U D's were inserted by doctors who not only did not speak Arabic but often not even French -- the end result being massive withdrawals of I U D's and a serious backlash against the whole programme. In the U A R only 11% of women receiving pills attended clinics regularly for one year, which represents an extremely high dropout rate) (2).

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(1) I U D: Intra-uterine contraceptive device - a plastic device inserted via the vagina in the uterus.

(2) For Tunisia, personal communication of various organisers of the F. P. programme; for the U A R, see F. Hefnaw: and A. Hnafi Mahmoud, "Attempt toward the control of population problem in Egypt" Egyptian Population and Family Planning Review, 2 (1) May 1969 p. 87-101.

To outline specifically potential areas of assistance, we would suggest assistance in the following fields:

a) Building up a "post-partum" family planning programme, in the major hospitals of the major cities -- if the countries concerned express a desire for this.

b) Stimulate the development of maternal and child health centres in both rural and urban areas. For instance, the Republic of Congo has 250 "Social Centres" to which it would like to add MCH services, but lacks both personnel and funds to do this, (not to mention a total lack of equipment).

c) Offer scholarships for the training of nurse - midwives, (possibly in Europe if sufficient facilities are not available in W. Africa), and develop facilities for the training of both "puéricultrices" and midwives locally.

d) Massive assistance is needed in the field of censuses and demographic sample surveys. This might seem rather far removed from family planning but in fact is not: not one single country of francophone W. Africa has ever had a census, and most population figures are based on not too precise sample surveys made often 10 or more years ago. One can hardly expect countries to become preoccupied about population growth if they do not even have an adequate idea of the composition of their population! Some of these countries -- notably Upper Volta and Togo -- have prepared excellent projects, have good statisticians but lack the funds to implement them.

Other areas of aid in the field of direct assistance to the organisation of family planning clinics, scholarships for doctors and other health personnel, seminars on pupulation, etc... are already more adequately covered by the numerous private and government organisations active in tropical Africa.

TABLES

AND

APPENDICES

Table I

1969 WORLD POPULATION DATA SHEET

Population Information for 137 countries

Region or Country	Population Estimates Mid - 1969 (Millions)	Birth Rate per 1,000 population	Death Rate per 1,000 population	Current Rate of Population Growth	Number of Years to double Population	Infant Mortality Rate (Deaths under one year per 1,000 live births)	Population Under 15 years (per cent)	Population Projections to 1980 (millions)	Per Capita Gross National Product (US$)
WORLD[1]	3551	34	15	1.9	37		37	4368	589
AFRICA[1]	344	46	22	2.4	28		43	456	140
NORTHERN AFRICA									
Algeria	13.3	44	11-14	2.9	24	86	47	19.5	220
Libya	1.9			3.6	19		44		640
Morocco	15.0	46	15-19	3.0	23	149	46	22.4	170
Sudan	15.2	52	18-22	3.0	23		47	21.0	100
Tunisia	4.8	45	17	2.8	25	110	41	6.4	200
UAR	32.5	43	15	2.9	24	120	43	46.7	160
WESTERN AFRICA									
Dahomey	2.7	54	26-31	2.9	24	110	46	3.4	80
Gambia	0.4	39	19	2.1	33		38	0.5	90
Ghana	8.6	47	20	2.5	28	156	45	12.2	230
Guinea	3.9	55	35	2.0	35	216	44	5.1	80
Ivory Coast	4.2	56	33	2.3	31		43	5.5	220
Liberia	1.2	40		1.8	39		37	1.5	210
Mali	4.9	52	30-32	2.0	35	123	49	6.5	60
Mauritania	1.1	45	25-28	2.0	35	187			130
Niger	3.7	52	25-27	2.7	26	200	46	4.8	80
Nigeria	53.7[2]	50	25	2.5	28		43		80
Senegal	3.9	43	17	2.5	28	93	42	4.9	210
Sierra Leone	2.5	44	22	2.2	32	146	37	3.3	150
Togo	1.8	55	29	2.6	27	127	48	2.3	100
Upper Volta	5.3	53	35	2.0	35	182	42	6.3	50
EASTERN AFRICA									
Burundi	3.5	46	26	2.0	35	150	47	4.7	50
Ethiopa	24.4			2.0	35			30.1	60
Kenya	10.6	50	20	3.0	23	132	46	14.6	90
Madagascar	6.7	46	22-25	2.4	29	102	46	8.5	90
Malawi	4.3			2.5	28		45	6.1	50
Mauritius	0.8	30	9	2.0	35	65	44	1.1	210
Mozambique •	7.3	42	31	1.2	58			9.0	100
Rwanda	3.5	52		2.7	26	137		5.0	40
Somalia	2.8			3.1	23			4.1	50
Southern Rhodesia •	4.8	48	14-18	3.0	23	122	47	7.1	210
Tanzania	12.9	45	23	2.9	24	189	42		80
Uganda	8.3	42	20	2.5	28	160	41		100
Zambia	4.2	51	20	3.1	23	259	45		180
MIDDLE AFRICA									
Angola •	5.4			1.4	50		42		170
Cameroon (Western)	5.7	50	26-28	2.2	32	137	39		110

Table I (cont.)

Central African Republic	1.5	48	30	1.7	41	190	42		110
Chad	3.5	45	31	1.5	47	160	46		70
Congo (Brazzaville)	0.9	41	24	1.7	41			1.1	120
Congo (Democratic Rep.)	17.1	43	20	2.3	31	104	39		60
Gabon	0.5	35	30	0.9	78	229	36		400
SOUTHERN AFRICA									
Botswana	0.6			2.0	35		43		60
Lesotho	0.9	40	23	1.8	39	181	43		60
South Africa	19.6	46		2.4	29		40	26.8	550
Southwest Africa (Namibia)	0.6			1.7	41		40	0.9	
Swaziland	0.4	36		2.9	24			0.6	290
ASIA[1]	1990	38	18	2.0	35		40	2472	184
SOUTH WEST ASIA									
Cyprus	0.6	25	7	1.8	39	28	35	0.7	690
Iraq	8.9	48		2.5	28		45	13.8	270
Israel	2.8	25	6,6	2.9	24	25	33		1160
Jordan	2.3	47	16	4.1	17		46	3.3	220
Kuwait	0.6	52	6	7.6	9	37	38		3410
Lebanon	2.6			2.5	28			3.6	480
Saudi Arabia	7.2			1.8	39			9.4	240
Southern Yemen	1.3	37	8	2.2	32	80		1.6	
Syria	6.0			2.9	24		46	9.2	180
Turkey	34.4	46	18	2.5	28	161	44	48.5	280
Yemen	5.0							6.9	90
MIDDLE SOUTH ASIA									
Afghanistan	16.5			2.3	31			22.1	70
Bhutan	0.8			2.7	26			1.0	
Ceylon	12.3	32	8	2.4	29	56	41	16.3	150
India	536.9	43	18	2.5	28	139	41		90
Iran	27.9	50	20	3.1	23		46	38.0	250
Nepal	10.9	41	21	2.0	35		40	14.1	70
Pakistan	131.6	52	19	3.3	21	142	45	183.0	90
SOUTH EAST ASIA									
Burma	27.0	50	25-31	2.2	32		40	35.0	60
Cambodia	6.7	41	20	2.2	32	127	44	9.8	120
Indonesia	115.4	43	21	2.4	29	125	42	152.8	100
Laos	2.9	47	23	2.6	27				70
Malaysia (East & West)	10.7	36	7	3.1	23	49	44	14.9	280
Philippines	37.1	50	10-15	3.5	20	73	47	55.8	160
Singapore	2.1	27	5	2.5	28	26	43	3.2	570
Thailand	34.7	46	13	3.1	23	31	43	47.5	130
Nord Vietnam	21.4			3.1	23		38		
South Vietnam	17.9			2.6	27				120
EAST ASIA									
China (Mainland)	740.3[3]	34	11	1.4	50			843.0	
China (Taiwan)	13.8	29	6	2.6	24	20	44	17.6	230
Hong Kong*	4.0	23	5	2.3	31	26	40	5.5	560
Japan	102.1	19	6,8	1.1	63	15	25	112.9	860
North Korea	13.3	38	10-14	2.4	29			17.5	
South Korea	31.2	41	10-14	2.8	25		42	43.4	150
Mongolia	1.2	40	10	3.0	23		30	1.7	

Information Service, Population Reference Bureau, 1755 Massachusetts Avenue, N. W., Washington, D.

Table I (cont.)

Region or Country	Population Estimates Mid-1969 (Millions)	Birth Rate per 1,000 population	Death Rate per 1,000 population	Current Rate of Population Growth	Number of Years to Double Population	Infant Mortality Rate (Deaths under one year per 1,000 live births)	Population Under 15 years (percent)	Population Projections to 1980 (millions)	Per Capita Gross National Product (US$)
AMERICA[1]									
NORTHERN AMERICA	225	18	9	1.1	63	22	30	264	3399
Canada	21.3	18.0	7.3	2.0	35	23.1	33	22.3	2240
United States	203.1	17.4	9.6	1.0	70	22.1	30	240.1	3520
LATIN AMERICA[1]	276[4]	39	10	2.9	24		43	376	385
MIDDLE AMERICA									
Costa Rica	1.7	45	7	3.8	18	70.0	48	2.7	400
El Salvador	3.3	47	13	3.3	21	62.0	45	4.9	270
Guatemala	5.0	43	15	2.8	25	92.0	46	6.9	320
Honduras	2.5	49	17	3.4	21		51	3.7	220
Mexico	49.0	43	9	3.4	21	63.0	46	71.4	470
Nicaragua	2.0	46	16	3.0	23		48	2.8	330
Panama	1.4	41	8	3.2	22	45.0	43	1.9	500
CARIBBEAN									
Barbados	0.3	30	9	0.9	78	48.0	38	0.3	400
Cuba	8.2	27	8	2.0	35	40.0	37	10.1	320
Dominican Rep.	4.2	49	15	3.4	21	80.0	47	6.2	250
Haiti	5.1	44	20	2.4	29		38	6.8	70
Jamaica	1.8	40	8-9	2.5	28	35.0	41	2.1	460
Puerto Rico *	2.7	26	6	1.1	63	33.0	39	3.1	1090
Trinidad & Tobago	1.1	38	8	2.4	29	42.0	43	1.6	630
TROPICAL SOUTH AMERICA									
Bolivia	4.5	44	19	2.4	29	99.0	44	6.0	160
Brazil	90.6	38	10	2.8	25	79.0	43	124.0	240
Colombia	21.4	45	11	3.4	21	80.0	47	31.4	280
Ecuador	5.8	45	11	3.4	21	90.0	48	8.4	190
Guyana	0.7	40	9-10	2.7	26	40.0	46	1.0	300
Peru	13.2	42	11	3.1	23	63.0	45	18.5	320
Venezuela	10.4	41	8	3.3	21	46.0	46	15.0	850
TEMPERATE SOUTH AMERICA									
Argentina	24.0	23	9	1.5	47	58.0	29	28.2	780
Chile	9.6	33	10	2.3	31	108.0	40	12.2	510
Paraguay	2.3	45	11	3.4	21	80.0	45	3.5	200
Uruguay	2.9	21	9	1.2	58	43.0	28	3.3	570
EUROPE[1]	456	18	10	0.8	88		25	499	1230
NORTHERN EUROPE									
Denmark	4.9	18.4	10.3	0.9	78	16.9	24	5.3	1830
Finland	4.7	16.5	9.4	0.6	117	14.2	27	5.2	1600
Iceland	0.2	22.4	7.0	2.0	35	13.7	34	0.3	1740
Ireland	2.9	21.1	10.7	0.5	140	24.4	31	3.5	850
Norway	3.8	18.0	9.2	0.8	88	16.8	25	4.3	1710
Sweden	8.0	15.4	10.1	0.8	88	12.6	21	8.6	2270
United Kingdom	55.7	17.5	11.2	0.6	117	18.8	23	60.2	1620

Table I (cont.)

WESTERN EUROPE									
Austria	7.4	17.4	13.0	0.5	140	26.4	24	7.7	1150
Belgium	9.7	15.2	12.2	0.1	700	23.7	24	10.2	1630
France	50.0	16.9	10.9	1.0	70	20.6	25	53.8	1730
West Germany	58.1	17.3	11.2	0.4	175	23.5	23	61.0	1700
Luxembourg	0.3	14.8	12.3	0.1	700	20.4	22	0.4	1920
Netherlands	12.9	18.9	7.9	1.1	63	13.4	28	15.3	1420
Switzerland	6.2	17.7	9.0	0.9	78	17.5	23	5.9[5]	2250
EASTERN EUROPE									
Bulgaria	8.4	15.0	9.0	0.6	117	33.1	24	9.2	620
Czechoslovakia	14.4	15.1	10.1	0.5	140	23.7	25	15.8	1010
East Germany	16.0	14.8	13.2	0.1	700	21.2	22	17.7	1220
Hungary	10.3	14.6	10.7	0.3	233	38.4	23	10.7	800
Poland	32.5	16.3	7.7	0.8	88	38.1	30	36.6	730
Romania	20.0	27.1	9.3	1.8	39	46.8	26	22.4	650
SOUTHERN EUROPE									
Albania	2.1	34.0	8.6	2.7	26	86.8		3.0	300
Greece	8.9	18.5	8.3	1.2	58	34.3	25	9.3	660
Italy	53.1	18.1	9.7	0.7	100	34.3	24	58.8	1030
Malta	0.3	16.6	9.4	0.6	117	27.5	32	0.4	510
Portugal	9.6	21.1	10.0	1.1	63	59.3	29	10.9	380
Spain	32.7	21.1	8.7	0.8	88	33.2	27	34.8	640
Yugoslavia	20.4	19.5	8.7	1.1	63	61.3	30	22.8	510
U S S R	241	18	8	1.0	70	26	32	277.8	890
OCEANIA[1]	19	24	11	1.8	41	18	30	23	1857
Australia	12.2	19.4	8.7	1.8	39	18.2	29	15.2	1840
New Zealand	2.8	22.4	8.4	1.9	37	17.7	33	3.6	1930

WORLD AND REGIONAL POPULATION (Millions)

	World	Africa	Asia	North America	Latin America	Europe	Oceania	USSR
MID-1969	3,551	344	1,990	225	276	456	19	241
2000 Projections, UN Constant Fertility	7,522	860	4,513	388	756	571	33	402
Percent Increase	112%	150%	127%	72%	174%	25%	74%	67%
2000 Projections UN Med. Est.	6,130	768	3,458	354	638	527	32	353
Percent Increase	73%	123%	74%	57%	131%	16%	68%	46%

1969 DATA SHEET FOOTNOTES

•Non-sovereign country.
Latest available year.
Assuming continued growth at current annual rate.
1966 data supplied by the International Bank for Reconstruction and Development.

1 Population totals take into account small areas not listed on Data Sheet.
2 Official government estimate of 64.8, based on 1963 census, is now considered high.
3 UN estimate. Other estimates range from 800-950 million.
4 Mid-1969 population estimates for the Latin American countries are taken from the latest figures of the Latin American Demographic Center of the United Nations. These figures are more recent than those of the 1967 UN Demographic Yearbook on which most of this Data Sheet is based.
5 Foreigners with resident permits not taken into account.

April 1969

Table II

Population, Rate of Increase, Birth and Death Rates, Area and Density for the World-Regions

Major divisions and regions	Estimate of mid-year population (millions)						Rate of population increase per cent[1]		Birth rate per 1,000	Death rate per 1,000	Area sq. km. (000)[2]	Density[3]
	1930	1940	1950	1958	1960	1963	1958-63	1960-63	1958-63	1958-63	1963	1963
World Total	2,070	2,295	2,517	2,895	2,990	3,160	1.8	1.9	34	16	135,756[4]	23
Africa	164	191	222	262	273	294	2.3	2.5	46	23	30,216	10
America[5]	242	274	329	395	411	439	2.2	2.2	32	12	42,050	10
Northern[5]	134	144	166	192	199	208	1.6	1.6	24	9	21,515	10
Latin	108	130	163	203	212	231	2.7	2.8	40	14	20,535	11
Asia[7]	1,120	1,244	1,381	1,598	1,651	1,748	1.8	1.9	38	20	27,621	63
East[6]	591	634	684	772	793	828	1.4	1.4	33	19	11,725	71
Southern[7]	529	610	697	826	858	920	2.2	2.4	42	20	15,896	58
Europe[8]	355	380	392	418	425	437	0.9	0.9	19	10	4,929	89
Oceania[5]	10.0	11.0	12.7	15.1	15.7	16.8	2.1[9]	2.2[9]	27	11	8,532	2
USSR	179	195	180	207	214	225	1.6	1.6	24	7	22,402	10

Source: United Nations Demographic Yearbook, 1964

1. Average annual rate per cent of population increase.
2. Comprising land area and inland waters, but excluding uninhabited polar regions and some uninhabited islands.
3. Population per square kilometre of area.
4. Including French Southern and Antarctic territories.
5. Hawai, a state of the United States of America, is included in Northern America, not in Oceania.
6. Excluding the USSR, shown separately below.
7. Excluding the USSR, but including both the Asian and European portion of Turkey.
8. Excluding the USSR, and the European portion of Turkey included in Southern Asia.
9. Rate reflects combined effect of natural increase and migration.

Source: R.K. Som, "Some demographic indicators for Africa" in Caldwell and Okonjo, eds. The Population of Tropical Africa, N.Y. 1968, p. 191.

Table III

Measures of Fertility and Mortality

Sub-region and country	Year	Type of data	Fertility measures			Type of data	Mortality measures		Rate of natural increase per cent	Expectation of life at birth	
			Crude birth rate (CBR) per cent	General fertility rate per cent	Gross reproduction rate		Crude death rate (CDR) per cent	Infant mortality rate (IMR) per cent		Date	Years
North Africa											
UAR (Egypt)	1950-55	C(1)	45[1]	182[2]	2.8[1]	D	21[3,4]	178[4,5]	-	1960	52.6
Sudan	1955-56	B	45-54[6]	202-242[7]	3.0-3.5[6]	B	20-25[6]	186[6]	2.5-3[6]	1955	40[6]
Marocco	1962	B	46[4]	223[7]	3.4[4]	B	19[4]	149[4]	2.7[4]	1960	49.6[8]
Algeria:											
Moslems[9]	1944-49	C(2)	45[1]	188[4]	3.0[1]	D	-	-	-	1948	35[10]
Tunisia	1961	A	43[4]	192[4]	3.1[4]	D	26[11]	-	-	-	-
Lybia	1944-49	C(2)	43[1]	186[2]	3.0[1]	-	-	-	-	-	-
Spanish North Africa: Ceuta	1963	A	21[8]	86[7]	-	A	7.5	62	1.4	-	-
Melilla	1961	A	19[8]	81[7]	-	A	7.4	41	1.2	-	-
West Africa											
Nigeria[12]	1952-53	D	53-57[1]	-	3.6-3.8[1]	-	-	-	-	-	-[15]
Ghana	1960	B	47-52[13] 4.2	203-224[7]	3.0[1,14]	B	24[13]	156[13]	2.3-2.8[13]	1960	38.7
Upper Volta[16]	1960-61	B	53[17] 5.2	213[17]	3.9[18]	B	35[17]	182[18]	1.8[17]	1960-61	32[18]
Mali[18]	1960	B	61 5.1	240	3.8	B	30	123	3.1	1957	26
Ivory Coast[18,19]	1957-58	B	55[19]	220	3.2	B	35	138[4,20]	2.0	1956-58	35
Guinea[18,21]	1954-55	B	62 5.3	223	3.5	B	40	216	2.2	1954-55	27
Senegal[18]	1960-61	B	43[22]	174	2.6	B	17	93	2.66	1957	37[23]
Niger[18,24]	1959-60	B	52 4.1	232	3.5	B	27	200	2.5	1959-60	37
Dahomey[18,25]	1961	B	54 4.5	227	3.3	B	26	111	2.8	1961	37[26]
Togo[18]	1961	B	55 5.7	228	3.5	B	29	127	2.6	1961	35
Mauritania	1961-62	B	47[13,27]	-	-	B	25[13,27]	-	-	-	-
Portuguese Guinea	1940-45	C(2)	47[1]	-	2.4[1]	-	-	-	-	-	-
Gambia	1962-63	D	39[8]	-	2.5[26]	D	21[8]	-	1.77[8]	1962-63	43[26]
Cape Verde Islands	1962	A	42[8] 4.2	147[7]	-	A	12	95[28]	3.0[8]	-	-

Source: id., p. 193.

Table III (cont.)

Sub-region and country	Year	Type of data	Fertility measures: Crude birth rate (CBR) per 1,000	Fertility measures: General fertility rate per 1,000	Fertility measures: Gross reproduction rate	Type of data	Mortality measures: Crude death rate (CDR) per 1,000	Mortality measures: Infant mortality rate (IMR) per 1,000	Rate of natural increase per cent	Expectation of life at birth: Date	Expectation of life at birth: Years
Central Africa											
Congo, Democratic Republic of [29, 30]	1955-57	B	43[8]	156[2]	2.4[1]	B	20[8]	104[8]	2.3[8]	1950-52	39[8]
Cameroon [18, 31]	1962	B	37	132	3.2	B	18	76	1.9	1962	46
Chad [18]	1964	B	46	148	2.4	B	31	165	1.5	1964	30
Central African Republic [18]	1959-60	B	48	157	2.5	B	26	190	2.2	1959-60	34
Congo (Braz.) [18]	1960-61	B	41	149	2.5	B	24	180	1.6	1960-61	37
Gabon [18]	1960-61	B	35	116	2.1	B	30	229	0.6	1960-61	32
Sao Tomé and Principe	1963	A	51[13]	260[7]	-	A	18,4[13]	140[13, 32]	3.34	-	-
East Africa											
Tanganyika [30, 33]	1957	D	46	175	2.8	D	24-25	190	2.1-2,2	1957	37,5
Zanzibar: Pemba [33]	1958	D	45	-	1,9	D	29	171	-	1958	42,8
Zanzibar [33]	1958	D	32	-	2,4	D	21	157	-	1958	40,3
Kenya [30, 33]	1948[34]	D	50[4]	-	3.2	D	20	-	3.0	1948	45[26]
Uganda [4, 35]	1958-59	B	42	187	2.6[36]	B	20	160	2,2	1958-59	44[26]
Madagascar	1950-55	C(2)	45[4]	163[4]	2.4[4]	B	19[37]	-	-	-	-
Zambia [4, 30]	1950	B	57[38]	181	3.5	D	19	259	3.2	1963	40[39]
Rwanda [30, 41]	1957	B	52,0[1]	220[1]	3.3[1]	B	13,7	137[40]	3.83	-	-
Burundi [30-42]	1957	B	46,6[1]	173[26]	2.6[1]	B	17,4	121[40]	2.92	-	-
Mauritius ex. dep.	1964	A	38,1	179[7]	2.8[43]	A	8,6	56,7	2.95	1962	60[1, 28]
Reunion	1964	A	43,3	189[7]	3.1[43]	A	9,9	74,2	3.34	1951-55	50
South Africa											
South Africa, Rep. of: Bantu	1950-55	C(1)	46[1]	198[2]	3.0[1]	-	-	-	-	-	-
Mozambique	1949-50	C(2)	47[1]	166[4]	2.6[1]	D	-	-	-	1940	45[30]
Angola	1940-45	C(2)	49[1]	178[4]	2.7[1]	D	-	-	-	1940	35[30]
Rhodesia [30, 44]	1953-55	B	48[4]	207[4]	3.1[4]	D	14[4]	122[4]	3.0[4]	1953-55	48,5
Lesotho	1955-56	B	40[1]	-	2.4[1]	D	23[4]	181[4]	1,7[4]	1955-56	41[45]
Botswana	1936-41	C(2)	41[1]	175[1]	2.7[1]	-	-	-	-	-	-

FOOTNOTES TO TABLE III

Type Codes:

A. Complete registration statistics.

B. Sample Survey data.

C(1). 'Reverse-Survival' estimates, relatively reliable data.
C(2). 'Reverse-Survival' estimates, data of low or uncertain reliability.

D. Other estimates.

1. Population Bulletin of the United Nations, No. 7-1963 (ST/SOA/SER. N/7).
2. Estimated by the United Nations Population Division.
3. For 1956, revised rate adjusted for under-registration of 23 per cent, estimated from localities having Health Bureaux.
4. Economic Bulletin for Africa, Vol. V, January 1965; Chapter B. I, 'Recent Demographic levels and trends in Africa'.
5. For 1959.
6. United Nations, Population Studies No. 37 (ST/SOA/Series A/37) 'Population Growth and Manpower in the Sudan'.
7. Estimated by the Economic Commission for Africa.
8. United Nations, Demographic Year Book, 1964.
9. Estimates for 1954, prepared by Mohammed Kerkoub at the North African Demographic Centre, Cairo ('Estimations des paramètres démographiques de la population musulmane de l'Algérie et projections démographiques') are: CBR 51, GFR 238, GRR 3.4, CDR 21, 41 for males and 46 for females.
10. Corresponding to average of United Nations mortality levels corresponding to 1, 000 m, values obtained from mortality data.
11. Estimated rate for 1959, basis unknown.
12. Excluding data for the province of Sardauna (the former British Northern Cameroons).
13. United Nations, Population and Vital Statistics Report (data available as of 1 January 1966 (ST/STA/SERA/75).
14. Relating to 1950-55.

15. Corresponding to the official projected population used for development plan.

16. Adjusted estimates, computed at the Princeton office for Population Research, are 49 for births, 36 for deaths and 270 for infant mortality (all per 1,000): Ansley J. Coale 'Estimates of fertility and mortality in Tropical Africa', First African Population Conference, Ibadan, 1966.

17. Adjusted rates on analysis by recall period, made at the Economic Commission for Africs on basis of data supplied by INSEE, Paris; the unadjusted rates were 50 % for births, 32 % for deaths, 1.8 % for natural increase and 200 % for general fertility rate.

18. Institut National de la Statistique et des études Economiques, Enquête démographique récente réalisée en Afrique noire d'expression française et à Madagascar: Tableau d'ensemble, Avril, 1965.

19. In the same paper as in ote 16, adjusted estimates for 1957-58 are: birth rate 55, death rate 32 and infant mortality rate 195.

20. For 1956.

21. In the same paper as in note 16, estimates for 1954-55 are: birth rate 46, death rate 38 and infant mortality rate 246.

22. In the same paper as for note 16, estimate for 1960-61 is 46.

23. For Bassee Vallee (population estimated 270,000), based on results of 1957-58 Sample Survey of 77 rural villages and five urban centres.

24. In the same paper as in note 16, estimates for 1960 are: birth rate 58, death rate 29, and infant mortality rate 211.

25. In the same paper as in note 16, estimates for 1961 are: birth rate 49, death rate 33, and infant mortality rate 221.

26. Estimate made at the Economic Commission for Africa on double interpolation in a graph prepared from Table 21 of the United Nations, The Future Growth of World Population, 1958 (St/SOA/SER. A/28) based on stable population model.

27. Estimate for 27 urban centres, based on births during 12 months period preceding urban census.

28. For 1959.

29. In the same paper as in note 16, estimates for the same period are: birth rate 45, death rate 26 and infant mortality rate 163.

30. For African population only.

31. For Eastern and Central divisions of East Cameroon (the former French Cameroons).

32. For 1958.

33. J. G. C. Blacker, 'The Demography of East Africa', in The Natural Resources of East Africa, E. W. Russell, ed., Nairobi, English Press, 1962.

34. In the same paper as in note 16, estimates for 1962 are: birth rate: 48, death rate 18 and infant mortality rate 132.

35. In the same paper as in note 16, estimates for 1959 are: birth rate 48, death rate 25 and infant mortality rate 172.

36. 1959 census report.

37. For 1957-61.

38. In the same paper as in note 16, the birth rate for 1963 is estimated to be 49 per 1, 000.

39. Based on analysis of census results.

40. For 1952.

41. In the same paper as in note 16, estimates for 1952-57 are: birth rate 50, death rate 23 and infant mortality rate 156.

42. In the same paper as in note 16, estimates for 1952-57 are: birth rate 46, death rate 22 and infant mortality rate 156.

43. For 1960.

44. Based on 1953-55 Sample Survey.

45. Estimate based on Sample Survey.

Table IV

Distribution of Countries by Level of Crude Birth Rate

(Provisional. Excluding countries having less than 250, 000 inhabitants in 1960, those having no satisfactory data and a few countries for which examination of available data had not been completed at the time of preparation of the present document. Countries are classified according to levels of crude birth rates at the most recent date available).

Crude birth rate per 1,000 population	World total	Less developed regions	More developed regions	Africa	Asia (excl. USSR)	Middle and South America	Europe (excl. USSR)	Northern America	Oceania	USSR
Total	123	88	35	37	24	27	29	2	3	1
Under 15, 0	3	--	3	--	--	--	3	-	-	-
15, 0 - 19, 9	18	1	17	--	1	--	17	--	-	-
20, 0 - 24, 9	14	4	10	--	2	2	7	1	1	1
25, 0 - 29, 9	4	1	3	--	1	--	1	1	1	-
30, 0 - 34, 9	3	3	--	--	1	2	--	-	-	-
35, 0 - 39, 9	11	11	--	3	4	4	--	-	-	-
40, 0 - 44, 9	22	21	1	9	3	9	1	-	-	-
45, 0 - 49, 9	29	28	1	13	7	8	--	-	1	-
50, 0 - 54, 9	12	12	--	5	5	2	--	-	-	-
55, 0 - 59, 9	5	5	--	5	--	--	--	-	-	-
60, 0 and over	2	2	--	2	--	--	--	-	-	-

Source: Department of Economic and Social Affairs, United Nations, Population Bulletin, No. 7, 1963, "With Special Reference to the Situation and Recent Trends of Fertility in the World", United Nations, New York, 1965, p. 2.

Table V

Estimated Crude Birth Rates and Gross Reproduction Rates
for the Regions of the World around 1960
(Provisional weighted averages of most recent available
rates for countries within each region)

Region	Crude birth rate	Gross reproduction rate	Region	Crude birth rate	Gross reproduction rate
World total	35-36[b/]	2.2-2.3[b/]			
Developing regions:	41-42[b/]	2.6-2.7[b/]	More developed regions:	22	1.4
Africa:	48	3.0	Northern America	24	1.8
North Africa	46	2.9			
West Africa	54	3.4	Europe:	19	1.3
South and East Africa	45	2.7	Northern and Western Europe	18	1.3
			Central Europe	18	1.2
Asia (excluding USSR):	40-41	2.5-2.6[b/]	Southern Europe	21	1.3
South west Asia	45	3.0	Oceania	24	1.8
South Central Asia	44	2.9	USSR	25	1.4
South East Asia	49	2.9			
East Asia	35-37[b/]	2.1-2.3[b/]			
Middle and South America:	41	2.8			
Middle America	45	3.0			
South America	40	2.7			

a Source: Dept. of Economic and Social Affairs, United Nations, Population Bulletin, No. 7, 1963, "With Special Reference to the Situation and Recent Trends of Fertility in the World", United Nations, New York, 1965, p. 1.

b Range of estimated values corresponding to alternative estimates for China mainland.

Table VI

Total Fertility, a few Selected Areas
of Tropical Africa.

Country	Year	Total fertility
Dahomey	1961	6.4
Ghana	1960	6.5
Ivory Coast 1st. agric. sector	1957-58	7.3
Niger	1960	7.7
Nigeria Calabar	1953	7.5
IBADAN	1952	9.1
Senegal	1960-61	6.3
Congo K.	1955-57	5.9
Kenya Western	1962	8.1
Sudan Central Southerners	1955-56	7.3 8.3
Uganda Northern	1959	6.7 8.4

Source: A. J. Coale, "Estimates of fertility and mortality in tropical Africa" in Caldwell and Okonjo, op. cit. p. 182-183.

Table VII

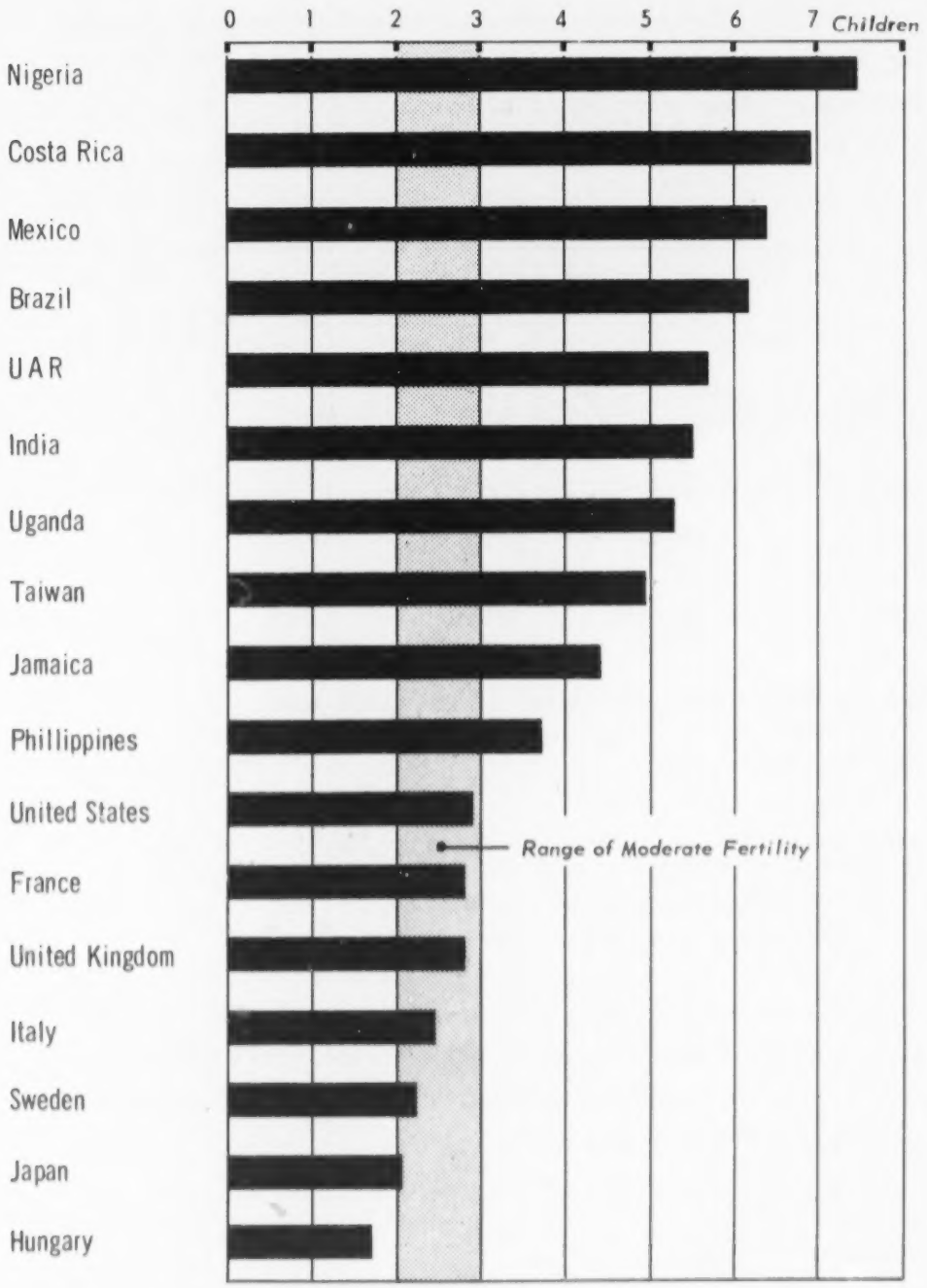
Children Born to Grand Multipara in Algeria during Their First Years of Marriage

Age of woman	Age at marriage	Children born	Children still alive	Fetal deaths
28	14	13	8	
30	15	17	7	
39	15	21	10	
30	19	9	8	2
28	?	13	10	
38	21	9	6	6
26	15	4	2	9
28	18	12	8	

Source: RADP, Direction Générale du Plan et des Etudes Economiques, Commission Nationale pour l'Elaboration d'une Politique de la Natalité, Rapport de la Commission, Alger, Janvier 1969. Data taken from the files of the first family planning clinic, January 1969, Although these cases represent the most striking examples of lack of spacing, numerous women have 12-15 conceptions in their life-time.

Figure I

AVERAGE NUMBER OF CHILDREN BORN PER WOMAN, AT AGE 44



Source : Todd Fisher, Our Overcrowded World, p. 230. Most African countries would come between Nigeria and Mexico.

Table VIII

Infant and Child Mortality, Selected Areas of West Africa

The pattern of infant and childhood mortality is quite striking, in that mortality between 1 - 4 years (included) is often as high - or even higher - than mortality in the first year of life. The following figures given by Clairin give an idea of the pattern:

Mortality 0 - 5, selected African countries:

	Upper Volta	Chad	N. Cameroon	West Cameroon	Dahomey
1q0	0, 182	0, 160	0, 197	0, 139	0, 111
4q1	0, 218	0, 127	0, 173	0, 147	0, 194

This deviates considerably from the U N standard life tables, (rounded figures):

	Table 22	Table 25	Table 27
1q0	0, 150	0, 180	0, 200
4q1	0, 075	0, 099	0, 118

Source for both tables: R. Clairin, The assessment of infant and child mortality in Africa, in Caldwell & Okonjo, eds. op. cit. p. 199.

1q0 = the number of children who die in the first year of life, (e. g. 0, 182 = 182 children out of a thousand born alive die before they are 1 year old)

4q1 = the number who die between the ages of 1 and 5

In most countries, mortality goes down quite sharply after the first year, but this is not the case in tropical Africa, where mortality in the 1-4 year old group is occasionally even higher than among infants, (see Appendix I for explanation).

Table IX

Selected Demographic, Social, and Economic Characteristics, for African Countries in the Developing World: Recent Data

Topic	Africa							
	Algeria	Cameroon	Congo	Dahomey	Ethiopia	Gambia (The)	Ghana	Kenya
Population (in millions)								
1969 estimate	13.3	5.7	17.1	2.7	24.8	0.36	8.7	10.5
1980 projection	18.4	6.5	22.0	3.4	30.1	0.46	12.1	13.9
Current estimate of vital rates per 1,000 population								
Birth rate	50	50	43	54	u	46	50	50
Death rate	16	26	20	26	u	21	20	20
Rate of natural increase	34	24	23	28	25	45	30	30
Per cent distribution of total population by age								
All ages	100	100	100	100	100	100	100	100
Under 15 years	47	u	40	46	u	u	45	46
15-64 years	48	u	55	50	u	u	52	49
65 years and over	5	u	5	4	u	u	3	5
Dependency ratio	107	u	82	99	u	u	91	106
Number of females 15-44 years (1969 estimate in millions)								
Total	2.5	1.1	4.2	0.51	4.8	u	1.9	2.3
Married	1.9	0.94	3.6	0.45	4.1	u	1.6	2.0
Density (1967 population per square kilometer)	5	12	7	22	19	30	34	17
Per cent of total population residing in urban areas	u	u	22	9	u	u	23	8
Per cent of total population residing in cities of 100,000 and over	17	10	7	5	3	u	8	8
Per cent literate (year: age group)	1954:	u	u	u	u	u	u	u
	15-19	u	u	u	u	u	u	u
Male	13.0	u	u	u	u	u	u	u
Female	5.4	u	u	u	u	u	u	u
Adjusted school enrolment ratio								
Both sexes, 1950	14	20	29	8	u	u	15	21
Both sexes, 1965	39	69	52	20	8	u	72	45
Females, 1965	29	53	34	13	4	u	74	32
Population (in thousands) per specific health worker								
Doctor	8.6	26.7	26.7	20.1	62.4	u	14.1	10.6
Midwife	35.6	8.8	u	11.4	u	u	u	4.6
Nurse	11.3	5.2	u	2.8	30.6	u	2.9	1.9
Population (in thousands) per hospital bed	0.3	0.4	0.3	0.9	2.4	u	0.8	0.8
Real gross domestic product								
Per capita in US dollars	218	109	96	69	61	u	231	111
Per cent derived from agriculture								
1950	34	u	37	u	u	u	u	47
1965	21	u	28	u	64	u	u	38
Annual per cent increase, 1960-1966 average								
Total	u	u	u	u	4.8	u	u	u
Per capita	u	u	u	u	3.0	u	u	u
Index of per capita food production in 1966-1968 (Base period, 1952-1956 = 100)	60	u	u	u	114	u	u	u

From: D. Nortman, Factbook on Family Planning, Population Council, N.Y., 1969.

Table IX

Selected Demographic, Social, and Economic Characteristics, for African Countries in the Developing World: Recent Data (Continued)

Topic	Africa (Continued)							
	Madagascar	Mauritius	Marocco	Nigeria	Senegal	South Africa	Southern Rhodesia	Sudan
Population (in millions)								
1969 estimate	6.7	0.85	15.0	64.7[19]	3.9	19.7	4.8	15.3
1980 projections	8.5	1.1	21.9	90.4	4.6	26.7	7.1	19.7
Current estimate of vital rates per 1,000 population								
Birth rate	46	38	50	53-57	43	46	48	52
Death rate	25	9	20	27	17	21	17	19
Rate of natural increase	21	29	30	27	27	25	31	33
Per cent distribution of total population by age								
All ages	100	100	100	100	100	100	100	100
Under 15 years	46	44	47	43	42	40	u	u
15-64 years	50	52	51	55	54	56	u	u
65 years and over	4	4	2	2	4	4	u	u
Dependency ratio	102	92	96	83	86	76	u	u
Number of females 15-44 years (1969 estimate in millions)								
Total	1.35	0.17	3.0	12.6	0.83	4.1	0.94	3.0
Married	0.91	0.14	2.6	10.7	0.71	2.5	0.80	2.6
Density (1967 population per square kilometer)	11	407	32	67	19	15	12	6
Per cent of total population residing in urban areas	u	u	29	16	u	47	18	u
Per cent of total population residing in cities of 100,000 and over	6	17	20	10	12	27	6	3
Per cent literate (year: age group)	u	1962:	1960:	u	1961:	u	u	1956:
Male	u	20-24	20-24	u	20-24	u	u	10-14
Female	u	74.6	26.6	u	14.5	u	u	32.9
	u	57.0	5.9	u	1.6	u	u	11.3
Adjusted school enrolment ratio								
Both sexes, 1950	19	52	12	14	6	49	43	5
Both sexes, 1965	41	68	38	25	24	71	57	14
Females, 1965	u	63	22	19	17	70	u	u
Population (in thousands) per specific health worker								
Doctor	10.5	3.8	12.1	44.6	16.7	1.9	7.6	24.6
Midwife	11.5	1.9	86.0	6.0	21.0	1.0	1.6	11.0
Nurse	3.7	1.2	4.5	6.1	3.7	0.5	1.0	3.7
Population (in thousands) per hospital bed	0.4	0.2	0.7	2.4	0.7	0.2	0.3	1.0
Real gross domestic product								
Per capita in US dollars	103	225	172	75	195	596	222	91
Per cent derived from agriculture								
1950	u	32	34	u	u	17	u	61
1965	u	24	32	u	u	10	u	54
Annual per cent increase, 1960-1966 average								
Total	u	u	3.4	4.5	u	6.2	0.1[23, 24]	4.5
Per capita	u	u	0.7	2.5	u	3.8	-2.9[23, 24]	1.6
Index of per capita food production in 1966-1968 (Base period, 1952-1956 = 100)	u	u	92	u	u	127	u	119

Table IX

Selected Demographic, Social, and Economic Characteristics, for African Countries in the Developing World: Recent Data (Continued)

Topic	Africa (Continued)			
	Tanzania	Tunisia	Uganda	United Arab Republic
Population (in millions)				
1969 estimate	12.9	4.9	8.3	32.5
1980 projections	14.6	6.6	10.3	46.4
Current estimate of vital rates per 1,000 population				
Birth rate	47	45	42	45
Death rate	22	17	20	21
Rate of natural increase	25	28	22	24
Per cent distribution of total population by age				
All ages	100	100	100	100
Under 15 years	u	41	u	43
15-64 years	u	52	u	54
65 years and over	u	7	u	3
Dependency ratio	u	91	u	86
Number of females 15-44 years (1969 estimate in millions)				
Total	2.5	1.0	1.6	6.9
Married	2.1	0.65	1.4	4.6
Density (1967 population per square kilometer)	13	28	34	31
Per cent of total population residing in urban areas	u	u	u	38
Per cent of total population residing in cities of 100,000 and over	2	16	u	28
Per cent literate (year: age group)	u	1956: 10-14	u	1960: 20-24
Male	u	37.5	u	33.5
Female	u	13.9	u	13.2
Adjusted school enrolment ratio				
Both sexes, 1950	9	19	18	25
Both sexes, 1965	23	64	32	53
Females, 1965	u	44	23	39
Population (in thousands) per specific health worker				
Doctor	17.8	8.8	10.4	2.3
Midwife	5.8	u	4.9	4.2
Nurse	1.5	5.0	9.9	5.1
Population (in thousands) per hospital bed	0.5	0.3	0.7	0.5
Real gross domestic product				
Per capita in US dollars	67	186	87	167
Per cent derived from agriculture				
1950	62	u	67	32
1965	54	22	59	25
Annual per cent increase, 1960-1966 average				
Total	3.9	5.8	4.1	3.5
Per capita	2.4	3.8	1.4	0.6
Index of per capita food production in 1966-1968 (Base period, 1952-1956 = 100)	u	88	u	109

Table X

DEVELOPMENT INDICATORS FOR 22 COUNTRIES

latest available figures[1)]

COUNTRY	ENERGY CONSUMPT. kg/capit. (of coal)	STEEL CONS. kg per capit.	LITTERACY RATIO (% over 15 illit)	1st & 2nd LEVEL SCHOOL ENRLMT[4)] GIRLS (%)	LIFE[5)] EXPEC. AT BIRTH M	F	INFANT MORT. RATE	PER CAPITA INCOME (US doll.)	NEWSPAP. CIRCUL. per 1000
HONG KONG	787	102	28	77	67	73	25.6	298	357
SINGAPORE	637	...	50	79	60	65	25.8	561	325
TAIWAN	726	68	28	72	66	70	20.2[10)]	221	70[14)]
MALAYSIA	424(W)[2)]	45(W)	53	..	62(W)	64	50(W)	256(W)	64
S. KOREA	567	25	8	67	55	61	...	140	51
TURKEY	422	24	61	44	54		155[11)]	299	45
TUNISIA	234	23	60-80[e)]	44	52-56[6)]		130[6)]	172	27
ALGERIA	421	17	75[3)]	29	50[7)]		150[7)]	220[13)]	15
MOROCCO	178	17	86	22	50		150[7)]	168	14
INDIA	176	13	72	44	42	41	139	77	13[15)]
PAKISTAN	92	8	81	15	54	49	142	108	18
GHANA	109	6	..	74	39	40[8)]	160[8)]	213	37
SENEGAL	138	..	94	17	37		223[12)]	182[(1)]	6
KENYA	144	..	..	32	43		132[12)]	100	9
REP. CONGO	76	4	62(R)	34	38	40	163[12)]	96	..
CAMEROON	77	..	..	53	34	37	")	102	4
I. COAST	151	..	over 80	22	35		195[12)]	203	3
TOGO	57	..	over 80	19	33	40[9)]	...	72	6
DAHOMEY	29	..	over 80	13	37		221[12)]	64	1
NIGER	13	..	99(CSS)	4	37		200(CSS)	73	0.4
CHAD	16	..	over 80	7	34	37	...	60	0.4
U. VOLTA	12	..	over 90	5	32	31	270[12)]	42	-[16)]

Table X

DEVELOPMENT INDICATORS FOR 22 COUNTRIES

latest available figures[1)]

Group I: Countries with relatively successful F. P. programmes.
Group II: Countries with average to poor F. P. programmes (except Algeria, no programme)
Group III: F. P. programmes only in Ghana and Kenya.

RADIOS per 1000 INHABIT.	DOCTOR/ POP. 20) RATIO	MIDWIFE/ POP. 20) RATIO	INHABIT. per HOS-PIT. BED 20)	% POP. in CITIES of OVER 20,000 (R)	% POP. NOT DEP. ON AGRIC. (CSS)	% WOMEN in NON-AGRIC. ACTIV. (21)	GVNMT. ATTIT. TOWARD F (24)	IDEAL No. OF CHILD. FOR 25 MEN
164	1/2320	..	280	82	(over 50)	29	F	..
...	1/1920	1/1300	280	(over 50)	94	18	F	3.9
107	1/1520[19)]	1/6100	1.040	24	(over 50)	15	F	3.9
50(W)	1/5600	1/4700	300	..	30-50[e)]	24[22)]	F	..
88	1/2540	1/5100	1.250	19	43	14	F	4.4
85	1/3220	1/7800	570	18	28	12	F	3.2
82	1/8800	1/43000	340	20	..		F	4.2[(26)]
56	1/10000[17)]	1/54000	290	25[7)]	35-50	less than 10%	RUF	4.9[(27)]
57	1/12220	1/70000	660	24	16-30[e)]		F	5.5[(28)]
15	1/4800	1/11000	1.710	12	30	..	HF	4.0
10	1/6200	1/88000	7.000(R)	8	..	2-3[23)]	HF	..
69	1/21000	1/17000	770	7	16-30[e)]		F	
71	1/16700	1/25000	720	10	..		..	
..	1/10600	1/11000	770	4	..		F	
..	1/26700	1/960000	280	9	16		RUF	
..	1/27000	1/68000	390	4	..		VUF	
16	1/18000	1/37000	510	7	less 15[e]	less than 10%	RUF	6 and over
18	1/22000	1/24000	740	5	less 15[e]		U	
16	1/20000	1/89000	930	6	less 15[e]		U	
21	1/65000	1/24000	1.780	3	less 15[e]		RUF	
10	1/72000	1/680000	970	1	less 15[e]		..	
14	1/101000[18)]	1/164000[18)]	1.680	3	less 15[e]		RUF	

NOTES TO THE TABLE

1) Unless otherwise indicated, figures are from the statistical yearbook for 1967, U.N., N.Y. 1968. For detailed comments, see the sources quoted.

2) W = West Malaysia

3) Republique Algérienne Démocratique et Populaire, Commissariat National au Recensement de la Population, Recensement général de la Population, Données abrégées résultats du sondage, Algiers, n.a.

R) = B.M. RUSSET et al., World Handbook of Political and Social Indicators, New Haven, 1964

CSS) = Compendium of Social Statistics, 1967, United Nations, N.Y. 1968

4) UNESCO yearbook, 1967, Unesco, Paris, 1968

5) Oct. - Dec. 1968, 34 (4), "Complete expectation of life at various ages, selected countries, Population Index

6) Based on preliminary information from the Population Growth Estimate survey

7) RADP, CNRP, Données rapides sur la population algérienne, Algiers, April 1967

8) S.K. GAISIE, Estimation of vital rates for Ghana, Population Studies, 23 (1) March 1969, p. 21-42

9) KEYFITZ and FLIEGER, World Population, Chicago, 1968

10) Excludes some new-born dying before registration

11) F.C. SHORTER, "Information on fertility, mortality and population growth in Turkey" 34 (1), Jan. - March 1968, p. 3-21, Population Index

12) Estimates for most tropical African countries are from A.J. COALE, "Estimates of fertility and mortality in tropical Africa", p. 179-186 in CALDWELL and OKONJO, eds., The population of tropical Africa, N.Y. 1968

We did not keep the U.N. estimates because they are so evidently underestimated if one compares them with the more careful estimates of COALE, (cf. supra) and would put Cameroon in a more favorable position than permissible.

NOTES TO THE TABLE. - Cont'd.

13) Estimate of a World Bank Mission to Algeria, 1966
I = Improbable. We consider this figure for Senegal highly inflated. (possibly due to the conversion rate employed)

14) FREEDMAN and TAKESHITA, Family Planning in Taiwan, p. 18, Table I-1

15) Figure only covers a certain number of large towns

16) Upper Volta does not publish a single newspaper. The Ministry of Information in the capital puts out daily a mineographed bulletin with the highlights of world news.

17) Source: Ministry of Finance and Planning, Directorate for Planning

18) Personal communication. Dr. Jolibois, WHO Health Statistician, Ministry of Health, Ouagadougou, 25/5/69

19) FREEDMAN and TAKESHITA, op. cit. p. 18

20) World Health Organisation, World Health Statistical Annual 1963, Geneva, 1967, (Latest available)

21) We have made a personal estimate of less than 10% for all African countries based on the figures available by industrial sector for a few countries of sub-saharan Africa in the Yearbook of Labor Statistics, Geneva, 1968, (International Labour Organisation)

22) Figure is for Malaya in 1957

23) Figure quoted to me by Dr. L. L. BEAN of the Population Council

24) VUF = Very unfavourable
RUF = Rather unfavourable
U = Uncommitted
F = Favorable
HF = Highly favourable

25) Figures for Asian countries are from W. MAULDIN, Fertility Studies: Knowledge, Attitude, Practise, Studies in Family Planning, June 1965. A global figure of 6 or more for subsaharan Africa is used, based on J. C. CALDWELL, "The control of family size in tropical Africa", Demography, 5 (2) 1968, p. 598-619 and DOW, T. E., "Fertility and Family Planning in subsaharan Africa", unpublished manuscript, Population Council, N. Y. 1968

26) J. MORSA, The Tunisian KAP survey, in B. BERELSON et al, eds, Family Planning and Population Programs, Chicago, 1966

NOTES TO THE TABLE. - Cont'd.

27) Results of a pre-test in a rural region of Central Algeria, (Palestro area), Spring 1967

28) R. J. LAPHAM, "Family Planning Attitudes and Knowledge among married women in Central Marocco", paper contributed to the annual meeting of the PAA, 1968 (mimeo).

Appendix I

The infant mortality rate and its relationship to weaning and feeding patterns in tropical Africa, from P. Pradervand, Some relationships of parity, spacing and family size on maternal and child health, with special reference to tropical Africa, Center for Population Planning, University of Michigan, December 1969, p. 39-45.

3. The infant death rate and the "weaning-undernourishment syndrom" (=WUS)*)

a. The basic pattern of breastfeeding in traditional society.

There is a widespread belief all over tropical Africa that if a woman breastfeeds here baby, while pregnant, the milk will in some way turn "sour" or "poison" and the fetus will also suffer. Tl is belief has been described by numerous authors. The following typical account is by Matthews:

> "Yoruba custom prohibits marital relations during lactation. Some believe that the child will be affected in an adverse way by 'poisoned' maternal milk. Others rightly appreciate the undesirability of incurring the risk of another pregnancy during lactation and acknowledge, the need for a period of recuperation between pregnancies. Morever, closely spaced pregnancies would necessitate early weaning which... would... lead to a substantial increase in infant mortality. They therefore forbid their husbands marital relations until their last child is at least 2-3 years old".

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*) We use this expression for lack of any technical term known to us to describe the sequence of events we outline here.

This lead traditionally to quite lengthy periods of breastfeeding. Ford, studying material gathered by anthropologists before the last World War, found that the average age of weaning was 3-4 years for African tribes of his sample:

TRIBE	Average age at weaning
Azande	3-6 years
Bena	1 1/2 - 2
Kababish	1 1/2 - 3
Lango	2 - 3
Masai	1 1/2 - 3
Mbundu	3 - 4
Nama	3 - 4
Tanala	2 - 3
Thonga	2 - 3
Tiv	2 - 3
Venda	3 - 4 89)

This pattern, with its imposed period of post partum abstinence, has been documented by a sufficiently large number of studies and authors for one to advance that it probably corresponds to a general pattern throughout tropical Africa, although some exceptions have been mentioned. *)

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*) Thus, it seems that some women do both lactate and copulate, as Thompson and Rahman confirm for the Keneba of Gambia. Although the asserted norm was no coitus during lactation, (1-2 years), the authors note that despite this taboo, 17 out of 44 women were 6 weeks to 5 months pregnant when they stopped lactating. "In this society, when the mother decided to cease breast-feeding, it was customary to send the child to live with a specific relative in order to facilitate the acceptance of full weaning. This amounted, however, to public acknowledgement that coitus had been resumed. Thus in order to avoid censure and ridicule, some women tried to conceal their pregnancy as long as possible and thus kept their child". B. THOMPSON and A.K. RAHMAN, "Infant feeding and child care in a West African village", J. Trop. Pediat., Sept. 1967, p. 124-138.

Nevertheless, we must not give the impression of universally practised periods of long (2 - 4 years) breastfeeding habits. There can be considerable variations within a same cultural area, as the following figure and table prove, (the data are from a study of three regions in Ethiopia, Tigre, Sidamo and Arussi). The data are interesting because they show that the length of breastfeeding can also vary with the sex of the child.

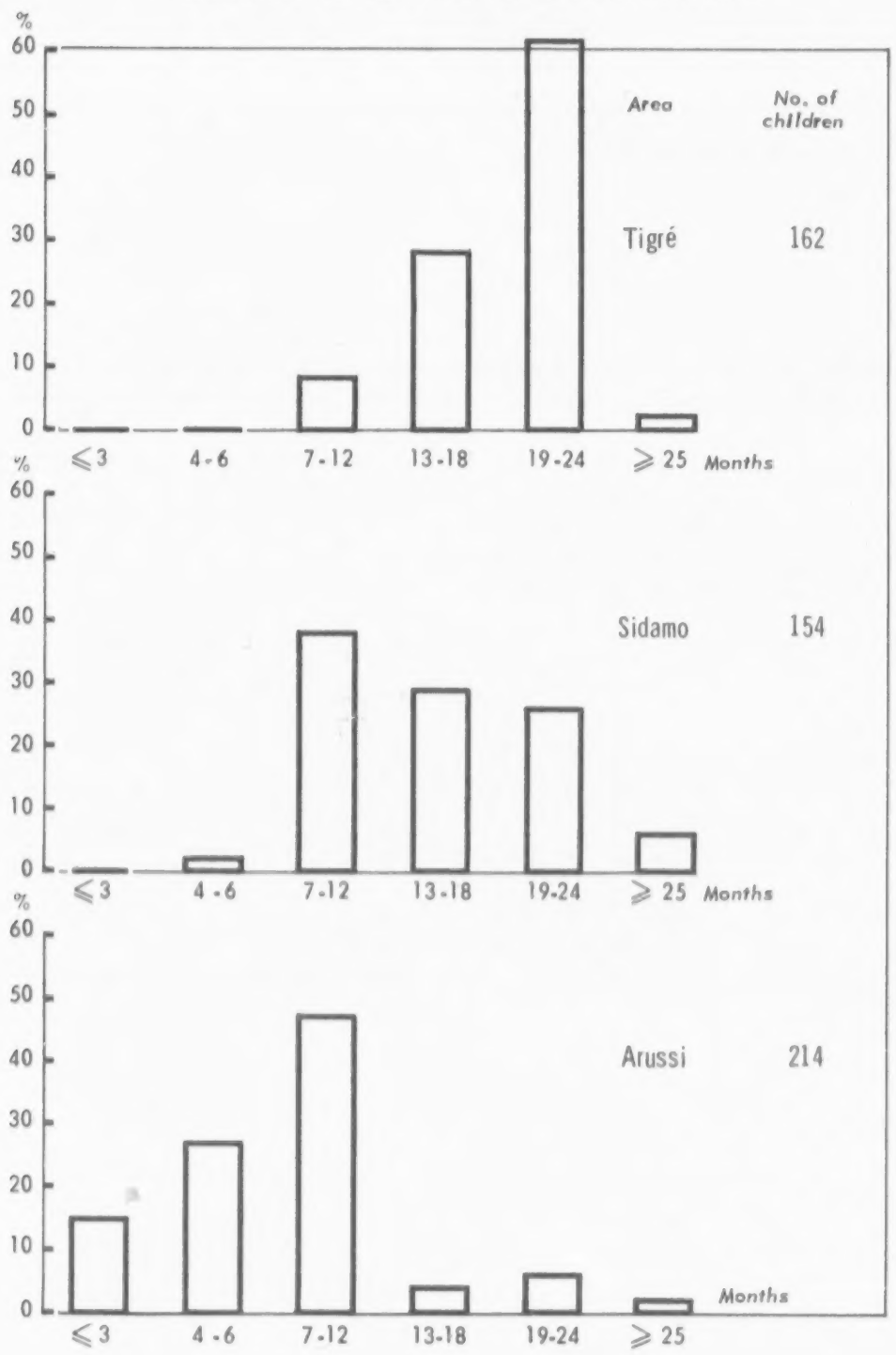
Table A

Distribution of weaned children according to the duration of breast-feeding

Area		Breast-feeding time, months						Total	
		≤ 3	4-6	7-12	13-18	19-24	≥ 25	n.	%
TIGRE	no.	0	0	13	46	100	3	162	
	%	0	0	8.0	28.4	61.7	1.9		100.0
SIDAMO	no.	0	2	58	45	40	9	154	
	%	0	1.3	37.7	29.2	26.0	5.8		100.0
ARUSSI									
boys	no.	11	25	54	7	8	1	106	99.9
	%	10.4	23.6	50.9	6.6	7.5	0.9		
girls	no.	21	33	47	3	4	0	108	
	%	19.4	30.6	43.5	2.8	3.7	0		100.0
Total	no.	32	58	101	10	12	1	214	
	%	15.0	27.1	47.2	4.7	5.6	0.5		100.1

Figure 2

PERCENTAGE DISTRIBUTION OF THE CHILDREN IN THE VARIOUS AREAS ACCORDING TO DURATION OF BREAST-FEEDING



As can be seen, whereas in Tigre over 60 per cent of the children are breastfed 19-24 months, in Arussi, close to 90 per cent are not breastfed more than a year.

This practise of post partum abstinence over a prolonged period was of course made possible by the existence of polygamy, (Ford even suggests that the taboo itself produced a "tendancy to polygyny"), in that a husband could turn to his second or third wife to find release during this period. But widespread changes in Africa are making this more and more difficult, and have led to an increased incidence of the weaning-undernourishment syndrom.

b. Structural change in urban Africa.

Widespread socioeconomic changes in Africa are leading to a diminuishing incidence of polygyny, especially in urban areas. Apart from traditional urban centers such as Ibadan, where an urban culture had developed on the basis of traditional family structures, towns are for the most part of recent implantation in tropical Africa. As Romaniuk has noted, the modern city, born as a result of the colonial occupation and nascent industrialisation, is ecologically unfavorable to polygyny; in some colonies, such as the ex-Belgian Congo, a polygynous male could rarely find a job in industry, the administration and often even as a servant. Thus, the additional woman, who, in a rural setting where she could work in the fields, was an asset, became a load in the urban milieu. To these factors, one must add the birth of a monetary economy which made it growingly difficult for young males to buy a second bride. Comparative statistical data giving trends over time are extremely difficult to find, but the fragmentary data we possess point clearly to the decline of polygyny in urban areas.

But such a change is evidently going to upset completely the tradition of postpartum abstinence described above. Two possible alternative of behavior appear, but further research would be necessary to measure the extent of their existence. The end result of both is that the wife becomes pregnant much sooner than she would have had she followed the traditional pattern.

i. Couples resume sexual relations mush earlier, the wife ends by becoming pregnant and weans her child abruptly.

ii. The woman puts her child fairly rapidly on cheap powdered milk and amenorrhea ends fairly rapidly. It is a sad but evident fact that bottle has a prestige value among African women. One of the main authorities on the subject, D. B. Jeliffe, has noted that "the results of artificial feeding for the majority in tropical countries are... usually most unsatisfactory. Very dilute feeds are usually given in a dirty contaminated bottle, so that the result is often a starved, marasmic baby with infective diarrhoea".

c. The effects of abrupt weaning.

The consequences of this abrupt weaning on the health of the child have been fairly well studied, and all the authors arrive at the same conclusion: the weaning, which is generally fairly abrupt, produces a general state of undernourishment, kwashiorkor, and a sudden rise in mortality due to the diminishing ability of the body to resist various infections. Illnesses that normally would be overcome with adequate treatment are frequently lethal. Thus, A. D. Berg mentions that in Ecuador, child death due to measles is 300 times greater (per thousand population) than in North America. The most common manifestation of illness is, according to Gordon, acute diarrheal disease, (so frequent that he coined the term 'weanling diarrhoea' to describe it), which is not a specific disease process but rather a collection of diseases having similar clinical manifestations. The tables on the following page illustrate this syndrom quite clearly; although we have not found sufficiently good data for Africa, there is little doubt that the general picture would be fairly similar.

Thus, in both sets of data, the incidence of diarrhoea is much lower among the children who are entirely breast-fed. In the Guatemalan sample, incidence of acute diarrheal disease is more than double among those who are on a partially or totally solid food diet.

Table B

Acute Diarrheal Disease Before, During, and After Weaning, Punjab, India

Feeding Regimen	Person-Years Experience	Cases of Diarrheal Disease	Cases of Diarrhea per 100 Person-Years
Breast-fed only	311.0	428	137.6
Breast-fed plus other milk	303.8	532	175.2
Breast-fed, milk, and solid food	452.3	803	177.5
Weaned from breast, full diet	73.3	141	192.5
Next three months full diet	233.5	297	127.2

Table C

Acute Diarrheal Disease Before, During, and After Weaning, Guatemalan Highlands

Feeding Regimen	Person-Years Experience	Cases of Diarrheal Disease	Cases of Diarrhea per 100 Person-Years
Breast-fed only	158.4	206	130.0
Breast-fed plus solid food	357.7	948	265.0
Weaned from breast full diet	28.0	77	275.0
Next three months, full diet	23.8	51	214.5

We will try and examine further on the possible beneficial effects of family planning as a means of reducing this high mortality. But it must be stated that the spacing of births per se will not be of much value if it is not linked to nutritional education : the fact that the mother weans her child

abruptly because of another pregnancy is only one aspect of the problem. The other aspect is that the dangers of the weaning period are increased due to an extremely deficient knowledge as to what constitutes the best diet for the child, (and here one must stress that, in Africa especially, unbalanced diets are as frequent as insufficient amounts of food) *) only comprehensive health education which encompasses all the basic aspects of nutrition, hygiene and family care can break the vicious circle of the WUS. This is but one the reasons we feel extremely sceptical concerning the possibility of non-integrated family planning programmes in West Africa.

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*) Yams, a frequent element of many childrens' diets in West Africa, have a very low nutritional value.

Appendix II

From: American Journal of Obstetrics and Gynaecology, 100 (7), pp. 885-887, 890-893.

MATERNITY CARE AND FAMILY PLANNING AS A WORLD PROGRAM

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The reasons for believing that family planning programs may be very effective when developed in association with maternity services are first discussed on a theoretical basis. Reference is then made to the demonstrated success of the "postpartum programs" developed in relation to organized hospital maternity services, notably in those of the group reported in this issue of the Journal by Dr. Gerald Zatuchni. A preliminary survey of conditions in twenty-nine countries indicates that roughly a third of the women in those developing countries are now delivered in hospitals or under hospital supervision. They are the women to whom pospartum family planning programs might rather readily be extended. The further expansion of this means of giving birth control instruction, however, would require the simultaneous development of maternity and family planning services. The problems, including costs, of setting up such a system on a world-wide basis are considered.

The effectiveness of providing family planning instruction in association with other aspects of maternity care has received increasing recognition in the last 2 or 3 years. The results of a collaborative trial of the postpartum approach to family planning in 25 hospitals in 19 cities in fourteen countries throughout the world are reported by Dr. Gerald Zatuchni in the section on

"Current Developments" which appears in this issue of the Journal.

From the International Institute for the Study of Human Reproduction and The Population Council.

The first results of this trial, organized by the Population Council, appear so favorable that it is necessary now to consider how far this promising instrument may be extended. In this article we shall first review the predictable advantages of a combination of maternity and family planning services, particularly as they seem to apply in the developing countries. We then proceed with a consideration of the problems that would have to be faced in the expansion of such combined services to the urban and rural sectors of the world, where maternity care itself is incomplete or lacking.

Table I

Special advantages of a maternity-based family planning program in developing countries

1. Physiologic

   Identification of the fertile woman: concentration of effort on the "high-risk" group
   Lactation providing time and continuing contacts through child health clinics

2. Educational

   The alternative to a lacking school system
   An acutely favorable situation with respect to motivation
   Susceptibility to advice from those to whom trust has been given for safe deliverance

3. Accessibility

   Universality of contact after first pregnancy
   Birth registration and dissemination of information
   The special opportunity for beginning with women of low parity
   Special means of reaching the indifferent or apathetic

4. Acceptability

   Virtue by association
   Effects of a lowered perinatal mortality
   Development of a medical intrastructure
   Availability of foreign aid.

Backgeound considerations

Some of the special and compelling advantages of the association of family planning with maternity services are outlined in Table I and may be briefly described as follows:

Physiologic. The use of the event childbirth to identify the physiologically most fertile women, those chiefly "at risk", is especially important in countries where facilities are limited and efforts must be concentrated at points they will have the most effect. Ideally, for example, the effort in India should be directed not to the 500 million people or to the 250 million females or even to the 90 million women in the childbearing age, but rather to the approximately 20 million who each year demonstrate their current fertility, or even more, to the relatively small group of women, perhaps 4 million, who bear their first child in a given year and have the greatest residual potential for adding to the population.

In the absence of the needed information for delaying a second pregnancy, conception is likely to occur again soon after the first ovulation, possibly only a few weeks after delivery when the child is not nursed, or after a somewhat longer but undependable time in the presence of lactation. In any case, there may be little time to spare for delayed decisions.

The effects of concentrating on the pregnant or just delivered woman may of course be enhanced in the developing countries where the practice of nursing provides a somewhat longer "breathing spell" and the association of maternal with child care in the MCH clinics allows for continuing occasions for contact and repeated instruction in family planning techniques.

Educational. The educational impact of a supervised obstetric experience will be relatively greater where school systems are lacking and illiteracy widespread. It is clear that birth rates are difficult to influence where literacy is low, and the solution of the population problem cannot be delayed until systems of universal education are established. It appears to be a quicker and cheaper undertaking first to establish a system of education limited to the key problem of reproduction and to set this within the framework of supervised maternity.

Two circumstances make the woman at this time especially ready to listen and to be instructed in matters of family planning. The subject of the next child is clearly of great relevance to her and she will be at the peak of a fluctuating "motivational curve" toward family planning. Besides this temporarily heightened interest she will be receiving advice from the individual or the staff to whom her confidence for her safe delivery has already been given. The psychological circumstances for the reception of family planning instruction at these times are thus ideal.

Accessibility. A national program of family planning based on maternity can, in theory at least, reach every eligible woman. Antimalarial programs have to no small extent depended on the detection of cases of "fever" by door-to-door inspections by health workers. How much easier it will be to detect cases of pregnancy and to see to it that all puerperal woman are provided with information about family planning. A program of supervised maternity cape seems to promise an eventual organi zation for universal, systematized family planning instruction. As a demographic by-product of great importance, it would provide the means for setting up, for the first time in most developing countries, a valid system of birth registration.

A system that provides for contact with all women in their first pregnancy promises the special advantages of reaching two groups of women who are apt to be least likely to respond to general appeals. One is the primigravida or woman of low parity, whose early adoption of the principle of childspacing would have the greatest demographic impact. The other is the woman who, from prejudice, indifference, or apathy, remains unresponsive to public appeals to take the step of visiting a birth control clinic.

Acceptability. The "public image" of population control will be enhanced by its association with such generally revered objectives as a lowered perinatal and infant mortality and with maternal welfare. From a more remote standpoint, a system of maternal and infant care will build the medical intrastructure and lower child mortality - both useful for subsequent work in family planning - and aid may come more freely from international agencies and foreign countries when associated with other humanitarian purposes.

The theoretical constructions, with the practical experience described in Dr. Zatuchni's report, seem to provide fairly convincing evidence that an

organized maternity service would be a successful vehicle for providing education and service in family planning to the uninformed people. The questions that now present themselves are those of cost and means of implementation.

Projected requirements

Not inconsiderable obstetric services are evidently available in the developing world, but are largely limited to the cities and closely surrounding areas. What would be involved in extending some form of institutionalized care to the much larger population living in rural villages ? As we have suggested, the theoretical case for providing family planning service in association with maternity care seems clear. The questions are the practical ones of costs and means of implementation.

In order to realize the essential but minimal requirements of a joint MCH-FPS system, what is needed? What are the necessary elements for the dual purposes of providing supervised maternity care and associating with it an effective, systematic organization for family planning? With due hesitation, in view of the great regional differences, it appears to us that there are only four.

1. An attendant should be present for all deliveries, however slight her training may be, but this attendant must be under the supervision of some regional health officer. From the family planning standpoint, such an attendant is the essential agent for instructing the woman in contraception or assuring her attendance at a birth control clinic.

2. A maternity health center for the area is needed for administrative purposes, as a station where expert medical attention is available and for hospitalization of the perhaps 5 per cent of women who develop major complications. Such a center is essential for the objective of a lowered maternal and perinatal mortality and, less directly, to elicit the respect and affection of the people so necessary if family planning advice is to be acceptable.

3. Any system of detecting, recording, and reporting pregnancy and birth must probably begin with a trained birth attendant. Such record-keeping is a step toward better obstetrics, for it is well known that

the statistical reports of the early thirties guided the American obstetrician to a better system of maternity care. Beyond its contribution to maternal welfare, however, a system of reporting pregnancies and births would be critically important for assuring that information is given and for the follow-up activities of a family planning program.

4. Within the maternity center there must also be a clinic for ante and postpartum examinations and for family planning instruction. Alternately or additionally, the center might serve as a station from which mobile units could carry maternal health and family planning services to the periphery.

The question now is whether the development of such an organization for the rural areas of the developing world is within the range of possibility.

As an exploratory exercise, we have attempted to calculate the costs of providing a system with such minimal functions for providing maternity and family planning services. We have undertaken several estimates, and the sample figures to be presented are clearly not universally applicable and do not pertain to any particular country. The data should perhaps be regarded only as illustrating a mode of thinking, but they may give some idea of the order of magnitude of the sums that would be required.

Let us first consider the probable annual burden of obstetrical care of a fairly typical rural "province" of a developing country. Assume that the "province" has 100,000 people and annual births of about 4.000. By dividing the province into four health districts and cach district into four substations, we arrive as the annual load for those working "at the front" (Table V). They will have about 5 deliveries a week to attend and advise, one primigravida a week to whose education special attention must be given, and one complicated case or emergency a month to refer to the District Health Center.

The division of functions of the provincial maternity service may be variously arranged. One plan would be the following:

The provincial general hospital would be be the center for the supervision of the work of the districts. It would provide medical consultation, maintain hospital beds with surgical and nursing care for the seriously ill, and watch over the record-keeping activities of the districts. As staff it would require

Table V

Assumptions on the annual obstetric work load
in a province of 100,000 people

Province	
Total population	100,000
Birth rate	40
Total births	4,000
District (four per province)	
Population	25,000
Annual births	1,000
Substations (four per district)	
Population	5,250
Annual births	250
First births	50
Emergencies and complications	12

a full-time physician with some specialization in obstetrics and gynaecology, two nurse-midwives or their equivalents, two clerks, and an ambulance driver.

The functions of the district health center would be the more immediate personal direction of the midwives in the substations and the provision of medical consultations or hospitalization for obstetric emergencies. It would receive reports of all pregnancies or recent deliveries occurring in the villages and would be responsible for seeing to it that all such "detected cases" received family planning instruction. The staffing of the district health center, with respect to maternity and family planning services, would require part of the time of a physician, who would not necessarily be a specialist in obstetrics, two midwives or health educators, one clerk and one driver.

The substations would constitute the "front line" units providing service to the 95 per cent of the relatively uncomplicated pregnancies and deliveries. The duties of its staff would be the identification of pregnant, parturient, or puerperal women, attendance on women during labor, a postpartum follow-up visit, the reporting of births, the actual instruction of women in family planning, or her reference to the family planning clinic of the district or to a

visiting mobile unit. An adequate staff to cover the estimated five deliveries per week would be one trained nurse-midwife with one minimally trained assistant.

The cost of construction for the various units needed for maternity and family planning services in a typical province of 100,000 will obviously vary widely from country to country. Construction would be simple in style and since the need for hospital beds is small, it should not be great. One estimate, arrived at not wholly without some knowledgeable advice, would be $100,000 for the construction of all units in the provincial system: the maternity section of a provincial hospital (10 beds) at $20,000; four district maternity health centers (4 beds each) at $10,000 each, and sixteen substations at $2,500 each.

Obtaining the needed personnel for such a service presents a twofold problem: recruitment and training on the one hand, costs on the other. Salaries, at least to American eyes, will be low; perhaps about $30,000 a year for all the provincial services in maternity-family planning care: one physician and a fraction of the time of four others at an annual cost of $4,000; 22 midwives at $500 cach; 16 assistant midwives at $300 each; 6 clerks at $500 each; and drivers, maintenance personnel, and others at a total of $5,700. To this annual amount for salaries, one must add another item, taken here to be $10,000, for consumable medical supplies, food, and other commodities for maintenance and replacement. According to these assumptions the annual cost of running a provincial maternity-family planning program of this type, serving a population of 100,000, would be of the order of $40,000 or $10 for each woman delivered.

It is appropriate again to caution that these calculations are only rough estimates, striving only for an order of magnitude, and will no doubt vary greatly from place to place. But it is also proper to recognize that, as these estimates are applied to national programs, a cost-diminishing factor will come into play, based on existing facilities that do not need to be constructed and existing staff whose salaries do not need to be added as part of a new budget.

Having arrived at approximate figures for costs of construction and of annual operation for maternal health and associated family planning facilities in a typical unit of 100,000 people involving 4,000 annual deliveries, we can simply multiply to make estimates of what it would cost to set up and serve

larger units. As examples, for India, the estimated bill would be $500 million for construction at most and $200 million for annual operation: for all of Latin America, perhaps $ 250 million and $100 million, respectively. The program of a country of 5 million population would cost $2 million a year for operating (not including construction); a country of 25 million would cost $10 million. For the entire developing world, a population of, say 2, 2 billion, the operating cost would be $880 million annually. Because the figures used are related to the total population of these areas and in many countries substantial facilities for maternity care already exist, these estimates of additional financial costs may well be excessive.

For comparative purposes, the food supplied to these countries in recent years is of interest. The value of food shipments by the United States under Public Law 480 alone over the past 5 years has been relatively stable at about $1, 5 billion annually. A more comprehensive estimate appears in Volume II of the report of the President's Science Advisory Committee Panel in World food Supply in the statement, "Under Food for Peace $2, 5 billion of United States agricultural commidities have been distributed annually to less developed areas".

Again we stress the figure we are offering as the cost for setting up and operating maternity-family planning services in the developing world are only tentative. What we may have arrived at is not a "world budget" but an indication of an order of magnitude of what the cost might be to set up a system that could perhaps be in position in 10 years and which, on the basis of theoretical reasoning and some practical experience, might be expected to contribute greatly to the solution of two great problems - maternal welfare and population growth. What is now needed is a detailed study of several regions where maternity services are in various stages of development. We need to know actual costs of construction, problems of transportation, availability of personnel, training facilities, political obstacles. The beginning of such an investigation, in several more or less typical areas, is now being made under the joint supervision of the International Institute for the Study of Human Reproduction and The Population Council.

This study, we hope, may produce a blueprint for action. Such a plan need not be exclusive, but could provide at least a central guiding line of direction. The development of family planning programs through the

simultaneous establishment of maternity services would then be the strategic basis for a general plan, supplementing present efforts.

The allocation of funds for population control has not paralleled the superlative statements made by responsible persons on the importance of the problem. We are accustomed to hearing that modern man lives under the two great threats of nuclear war and population growth. Predictions are freely made as to when various regions will be facing mass starvation.

Perhaps one of the reasons for underexpenditure, in the face of the high assessment of the urgency of the situation, is the lack of understanding as to how money may be spent. In a programm for associating maternity service with family planning we may have in our hands the basic framework, "a grand plan" for a coordinated world effort. If after some further study a consensus can be reached that this is in fact a highly promising way in which to proceed, the needed financial support can hardly fail to be given.

Dr Zatuchni participated in the survey resulting in Table A and we are indebted to him for the first presentation of some of these results.

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ANNEX

A summary of the proceedings of the Expert working group meeting on "Family Planning in Africa: Programmes and Constraints" held in April 1970, at the Development Centre, Paris.

Introduction:

This meeting was the first of a series currently being arranged to examine population problems at a regional level. It was designed as a technical meeting between African countries that were currently embarking on population programmes, either officially or privately, and the non-African agencies, both governmental and private that are currently working in this field in Africa. It was hoped that the meeting would enable all those interested in this new development in Africa to clarify the problems that face African governments contemplating population policies; to consider what work needs to be done before such policies can be realised and in particular, where policies designed to slow down the rate of population growth are adopted, what constraints exist on the adoption of fertility control, both at the family and the national level. The meeting was designed as a preliminary to a further meeting, to be held later in the year, to which only participants from African countries would be invited and at which both the current relevance and the long term prospects of both pro and anti-natalist population policies could be fully examined on the basis of the technical data that the April meeting and subsequent research could provide.

Documentation:

In addition to the paper presented here, background information on the Demographic situation in Africa was provided by the UN Economic Commission

for Africa. Summaries of current government attitudes and of the family Planning situation in African countries to date wera provided by the Secretariat.

The United Nations Family

Representatives of various United Nations agencies gave information about their mandates and the scope of current activities in family planning in Africa. Of particular importance were considered the rapid expansion of the Economic Commission for Africa's work programme, thanks to additional financing by the UN Fund for Population Activities. Further developments depended on the requests made to the Fund, which was in a better position to help quickly and flexibly than most other aid available through the UN. A comprehensive paper from WHO showed how its approach, which centred on the inclusion of family planning in basic health services, meant that in Africa the basic health infrastructure had to be expanded before family planning could effectively be introduced.

The Recipient Countries

Family Planning programmes and constraints. The meeting concentrated on five countries in particular: the UAR, Kenya and Ghana, Nigeria and Algeria. As far as family planning aid was concerned the key problems remain as lack of continuity, the problem of earmarking grants for specific projects, the problem of 'strings attached', and the difficulty of getting aid in local currency. The UAR's experience showed that support for private organizations in countries with national programmes has to be carefully coordinated to avoid duplication and muddle. Kenya's experience showed the danger of relying too much on external financing which could undermine the need for national urgency and committment to the programme, and showed that even in a country with a well developed health service, the main obstacles to developing a family planning programme were shortage of trained staff and the overwhelming demands made by preventive and curative medicine on available resources. Much interest in Ghana's programme centred around policies complementing family planning such as restrictions on pro-natalist benefits and migration. Nigeria felt other aspects of reconstruction and development deserved higher priority than family planning at this time, and Algeria went further in suggesting that the only way to succeed was to concentrate on economic and social development, and that fertility control was a result of development.

The Donor Agencies

The International Planned Parenthood Federation has a particularly useful role to play in Africa at this time as it operates through the local indigenous Family Planning Associations which are beginning to create a favourable climate towards family planning in many African countries and setting up clinics and services at a time when governments are not yet in a position to do so, and are still considering the need for population policies. Amongst the Government Agencies, US AID and SIDA (Sweden) are actively supporting both government and non-governmental organizations over a wide field of activities in population, as were the Netherlands government in Kenya and Tunisia, and Denmark in the UAR. Other governments, such as the UK, the German Federal Republic Japan and Norway also support multi-lateral programmes such as the UN or IPPF giving assistance to Africa in the population field. Amongst the private agencies, the Ford Foundation, the Population Council and the Pathfinder Fund have wide-spread programmes of support. A background document has been prepared by the OECD Development Centre giving details of the current extent of aid in population in Africa, together with a summary of the mandates of these agencies and the type of assistance they are able to provide.

Summary

The discussions raised many points of interest, for countries which have decided either to set up government sponsored family planning programmes or to permit or encourage voluntary programmes. Among them the following are of particular importance:

1) The role of voluntary associations in arousing interest amongst the people of the country and preparing the way for Government consideration and adoption of a population policy.

2) The necessity of developing the basic health services, without which family planning cannot progress.

3) A suitable climate for ideas of planning the family to take root can only be created within the context of an overall plan for creating a modern society by the promotion of economic and social development. Family planning is only a part of the development process and cannot flourish unless that process is taking place.

4) Six African governments are now committed to policies of reducing the rate of population growth, and a further sixteen show an interest in this or in promoting family planning as a health measure. It was emphasized that when decisions were made, and policies adopted, that they should be taken by that country of its own accord and not taken as a result of pressures from outside.

5) The principal role of those outside Africa who are concerned with Africa's population problem is to provide help on request. This can be either assistance in providing the factual basis on which African Governments can make their own decisions, or, when those decisions have been made, assistance to help them to achieve the results they consider necessary.

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